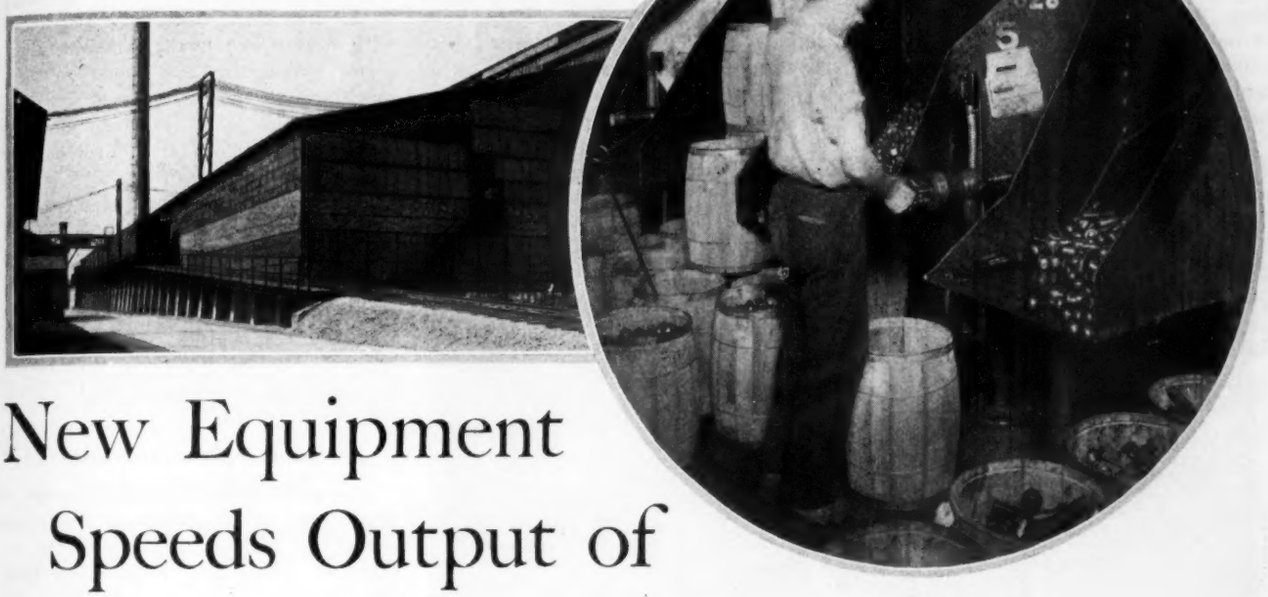
Volume 83
Number 19

IRON TRADE REVIEW

Cleveland, O.
Nov. 8, 1928

ROTATING head shown at right permits operator to attach a nut to a bolt at the rate of 11,000 a day. Below is an exterior view of the forge shop showing shipping track elevated to level of warehouse floor.



New Equipment Speeds Output of Track Bolts, Nuts and Spikes

By George A. Richardson

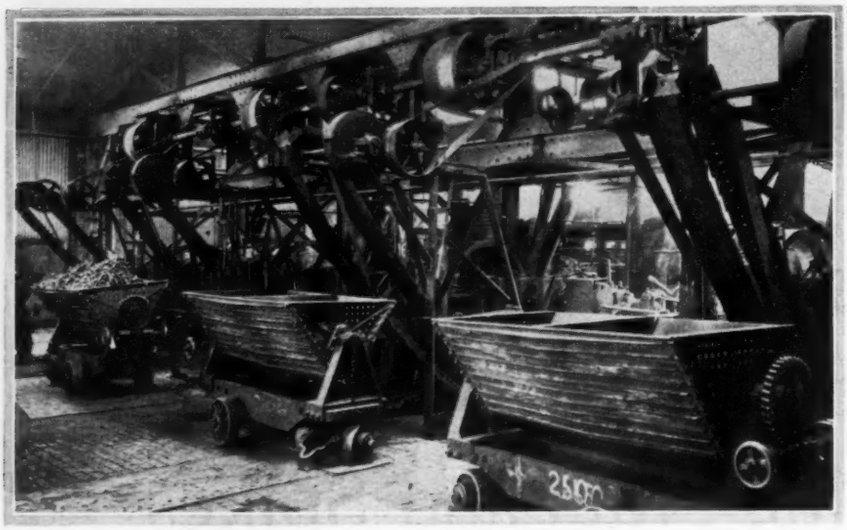
TRACK building and maintenance requires tremendous quantities of bolts, nuts and spikes. The most modern methods of mass production are necessary to meet the demand for uniform quality, reasonable cost and prompt delivery of these products. A large proportion of orders for track materials call for standardized sizes and products in such quantities that they can be manufactured on automatic or semiautomatic machines. However, with these, many small lot variations of size or shape or both usually are ordered. Equipment adapted to mass production generally cannot be used economically for the specialties, compelling resort to hand-fed machines and other modifications in practice. Large numbers of spikes are required in railroad maintenance work, mainly in standardized sizes. However, there is always a demand for specialties such as boat spikes, dock spikes, etc. The spike department therefore is divided into two manufacturing divisions with a common warehouse, where large stocks of salable sizes are carried. Standard spikes 5/8 and 9/16-inch by 5 to 7 inches long are made on five automatic units, each unit consisting of loading-rack, heating furnace, forging machine and conveyor. Steel bars 30 feet long and of proper composition, rolled on a newly installed modern 10-inch mill are brought from storage to the charging racks in the rear of oil-fired heating furnaces. These bars are pushed into the furnaces, heated to forging temperature, pushed out one at a

Describes Methods of Mass Production

THIRD of a series of articles describing mass production methods employed in the manufacture of bolts, nuts and related specialties at the Lebanon, Pa. division of the Bethlehem Steel Co. Facilities and methods employed for the manufacture of bolts and nuts were described in the Oct. 25 and Nov. 1 issues respectively. In this article the author discusses modern methods and equipment used in making bolts, spikes and rivets. In a subsequent article other specialties will be discussed.—THE EDITORS.

time into pinch rolls which pull the bars into the forging machines. The pinch rolls serve not only as feed rolls, but they cut the material to spike length and point it at the same time. The pointed pieces in turn are caught by gripping-dies; headed by the heading dies; thrown clear of the machine by kickers; and dropped on the conveyor belt, which carries them into large containers for transfer to the warehouse.

Spikes of special sizes and lengths, including boat, dock and dog-ear spikes, are made on hand-fed jobbing machines. One automatic machine will average about 125 kegs (200 pounds each) of spikes in ten hours. As high as 180 kegs per day has been attained. In normal operation, 95 to 100 spikes are made every minute. One hand machine has maximum capacity of about 45 kegs per day.



Discharge side of automatic units for making standard railroad spikes. The containers when filled are transferred to the warehouse

In the warehouse the spikes are inspected and packed in 200-pound kegs. Packing kegs used are made from well seasoned staves in a special unit of the plant provided with adequate facilities for keg manufacture and for stave seasoning. Large stocks of standard spike sizes are maintained to facilitate prompt shipments. From 4000 to 6000 kegs of 9/16 x 5½-inch spikes alone are carried. All stock spikes are made to standard A. R. E. A. specifications.

Track bolts, including heat-treated bolts, screw spikes and rivets are made in a new unit known as No. 2 forge shop, in which equipment and methods represent the last word. In a building, 250 x 900 feet are manufacturing equipment; heat treating equipment; and large warehouse facilities.

The manufacturing equipment of No. 2 forge shop comprises three groups of forging machines for the actual manufacture of bolts, rivets, etc., with auxiliary equipment, such as shears, trimming machines, heating furnaces, etc. The heat treating equipment comprises oil and electric furnaces. The nutting, packing and weighing department also is located on the ground floor. The steel bars are brought from mill storage on narrow gage cars, drawn by an electric locomotive. Overhead cranes may place these bars on the loading racks back of the heating furnaces; at the shears; or in temporary storage.

The first group of machines, consisting of four semiautomatic hot-headers and one hand machine is at the west end. This group makes rivets, square-head bolts, hexagon-head bolts, carriage bolts, guy-clamp bolts and standard track bolts for stock. The hand-fed machine is for specialties.

Each machine is served by an oil-fired heating furnace. Bars 30 feet long are pushed into the furnace from the loading racks and after heating the pinch rolls feed the material into the hot-heading machines. From this point operations are automatic. The entering bar enters, strikes a gage, is cut off to the measured length and the piece is moved across in front of the heading-dies. Next in order it is seized firmly by gripping dies while the heading die forms a head. The bolt, or rivet, is then released, moved clear of the dies by a pick-up and dropped on the flight type conveyor. This conveyor carries the bolts or rivets up to distributing spouts through which they drop into 2500 pounds capacity containers. Rivets go direct from here to bins where they are sorted, then packed in 200-pound kegs, defective material being discarded. The procedure with bolts is described later in the present article.

Production rates on these machines vary with the diameter and length of the pieces. About 150 bolts ⅝-inch diameter up to 4-inch lengths can be made a minute; and 125 a minute in lengths up to 7 inches. Bolts larger than ⅝-inch diameter and up to 1 inch and up to 4-inch lengths can be produced at the rate of about 120 a minute. This reduces to 100 per minute for larger sizes.

A second group of seven hand-fed open die machines is used for miscellaneous work such as tee-head, hook, and more especially frog bolts with square and hexagon heads. Many screw spikes are also made on these machines, as well as almost any kind of bolt from 2 inches long upwards. Two thread rollers also form part of the equipment in this group.

Thirty foot bars are sheared, six bars at a time, to the desired lengths for the hand-fed machines. These multiple shears cut a daily average of nearly 30,000 pieces, which are stacked in a container, transferred to oil-fired heating furnaces and heated for heading or heading and threading, as required.

Screw Spikes Are Made

A typical railroad product made on this group of machines is the screw spike. In making this commodity, individual pieces are transferred from the heating furnace and fed into open-die machines one at a time. Gripping dies grip the piece, the leading die comes up and forms a head, after which the piece drops on the conveyor and passes to the thread rollers to be threaded on the initial heat as also are track bolts when made on these machines.

After threading, some spikes require trimming on the head before they go to the warehouse. All screw spikes are oiled after threading and then go to a special second floor warehouse in the forge shop building. Here they are sorted and any defective pieces thrown out. Track bolts and rivets are sorted before leaving the main floor of the forge shop. Operating speed on the hand-fed machines depends upon the size of the order and upon the size of the spikes. On a large order, one man can turn out 8000 screw spikes a day.

The third group of machines, although adapted to making any products of the division, generally is used for handling large orders of track-bolts and screw spikes. This group consists of three semiautomatic hot-heading machines and conveyors, roll threaders and other auxiliaries. On these machines oval head and button-head bolts from ¾-inch to 1½ inches diameter, inclusive, are made up to

7 inches long and in quantity lots.

These machines operate the same as the first group with oil-fired furnaces heating 30-foot bars, which after being started into the machines, feed automatically at speeds depending upon length and diameter of stock. Track bolts 1 inch diameter are made at the rate of 100 per minute; 1⅛-inch diameter, 92 per minute; and, screw spikes, 92 per minute.

Normally the bolts go by flight conveyors direct to the thread rollers, two for each hot header, their speed of production being about one-half that of the hot-heading machines. Thread rolling dies either raise the threads to a diameter larger than that of the stock or draw the threads down to the same diameter. Threaded bolts drop into containers, holding from 2000 to 4000 pounds each.

If the thread rollers are shut down the bolts go direct from the hot-headers to the containers. There is always a small quantity of bolts that have dropped off the conveyors on their way to the thread roller. In both cases, the bolts are re-heated in a rotary furnace and then conveyed to a separate thread roller provided for this purpose.

Trimming Is Required

The operations after heading and threading vary with the product. The first step is to carefully assort the bolts in the forge shop, keeping separate those which have fins on the heads. About 10 per cent are finned and require trimming. Special designs all may require trimming. Three hand-fed trimming machines are available. The bolts are fed by hand into ring dies, pushed through and dropped onto a "shake-out" conveyor.

In recent years there has been a constantly increasing demand for heat-treated track bolts, because of their superior physical properties. About 95 per cent of the bolts made in the No. 2 forge shop are heat-treated, high-carbon or chrome-nickel steel being used. In the heat treating department there are jobs which can be handled in mass production; and a variety of others which must be handled in smaller lots. Two types of furnaces, therefore, are necessary.

Two oil over-fired jobbing furnaces equipped with five burners each are used for heat treating small bolts and special bolts of all sizes. Pans containing the bolts are charged at regular intervals, and as each pan is charged at one end of the furnace, a pan leaves the other end, dumping its heated bolts into a quenching bath. From that point the handling of the bolts is the same as with the electric furnace. Emptied pans are brought back to the front of the furnace on a roller conveyor, refilled and put back into the furnace while still hot.

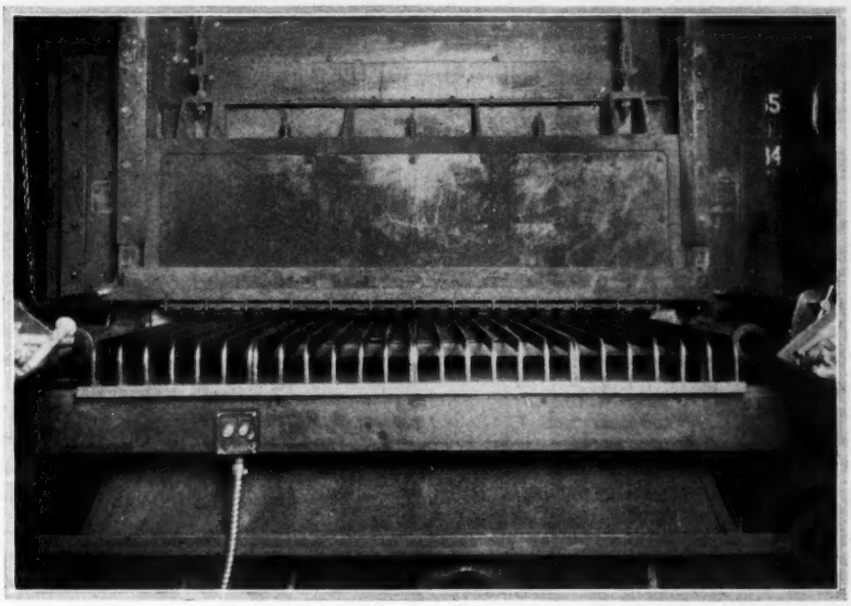
Three tee-grid electric furnaces form the latest equipment in the heat treating department, and are used for mass production jobs. These furnaces are built specially for heat treating track bolts. The heating elements are in the side walls and roofs. One set of thermocouples registers the furnace temperature where the bolts drop into the quenching bath; a second set controls the current input.

The hearth plate has grooves, which keep the bolts separated to assure uniform heating. There are from 24 to 36 of these grooves, depending upon the bolt sizes. The hearth plate can be moved in and out. Bolts are laid in the grooves with the head facing out. As the hearth plate moves in, the heads of the individual bolts pass under hinged fingers which lift to permit their entrance but prevent their return when the hearth plate moves back to the starting position. The bolts thus gradually feed forward until they finally drop into the quenching bath. The timing mechanism is regulated by a clock and temperature control is automatic.

Oil is more commonly used than water as a quenching medium. An electric agitating pump operates in conjunction with a water cooler to keep the bath temperature constant. Chains passing through the quenching bath have three speeds, giving a considerable control range. After quenching the pieces pass out into containers. All heat treated products are sprayed with a protective oil coating.

Frequent and painstaking inspections maintain high standards. The die setters and assistant foremen must continually inspect the product in the earlier stages. Finished work is passed on by inspectors with no other duties. Rivets are dumped into sorting bins and picked out by hand. Track bolts are sorted before heat treating; those with fins are separated for trimming and those with imperfect heads for reheading.

It is necessary that heat-treated bolts meet the physical requirements of the specifications. A laboratory has been specially fitted for testing bolts during treatment. Samples are taken at frequent intervals, making possible rigid adherence to requirements.



Charging end of electric furnace for heat treating track bolts. Grooves in hearth plate keep work separated to assure uniform heating

In addition to the usual type of nuts used in track work, large quantities of a special lock nut, known as the standard unit lock nut are made. This has a locking action obtained by making the nut to give a spring effect in the top part. The nut will not move unless force is applied. The method of locking causes no thread deformation in bolt or nut.

The equipment of the nutting department includes 15 electrically-driven rotating head nutting machines. Above these is a row of storage bins which feed down to shelves located on either side of the operator. There are two bins for each machine. One of these is filled with nuts of the proper size, and the other with bolts. The bolts and nuts are brought by an electric hoist to the nutting department in containers which are dumped into the proper bins. The nuts feed down to the bench at operator's left and the bolts to the one at his right. The operator picks up a nut with one hand; a bolt with the other; starts

the nut on a thread, then inserts the nut in the rotating head and runs it up on the bolt two or three threads or other specified amount, then drops the assembled pieces into a standard 200-pound keg.

An experienced man can nut as many at 11,000 bolts a day; 800 kegs of bolts have been nutted in one day in this department. The nuts must fit closely. Frequently customers specify in pounds maximum or minimum the wrenching fit desired, which is varied in the tapping operation. A special nut testing machine is provided in the laboratory where frequent tests are made. When the operator has filled a keg he pushes it on an electrically-operated roller conveyor, which carries it to scales. Here a weighman adds or takes out enough to bring the weight to the standard 200 pounds.

Conveyed to Warehouse

After being loaded to correct weight kegs are transferred by electric truck to a freight elevator and carried up to the warehouse on the second floor of the forge shop. This warehouse stores track bolts, screw spikes and rivets. All square and hexagon head bolts made in the No. 2 forge shop go to the finishing department. The warehouse also serves as shipping floor; it extends the entire length of the building and is 72½ feet wide. Here customers inspect the product as soon as it arrives on the floor. The kegs then are headed, nailed and are ready for shipment.

The shipping facilities are convenient. A loading track elevated so that the car floors are level with the warehouse floor, gives direct access with electric truck to six cars at one time.

Studies Increasing Use of Electric Power

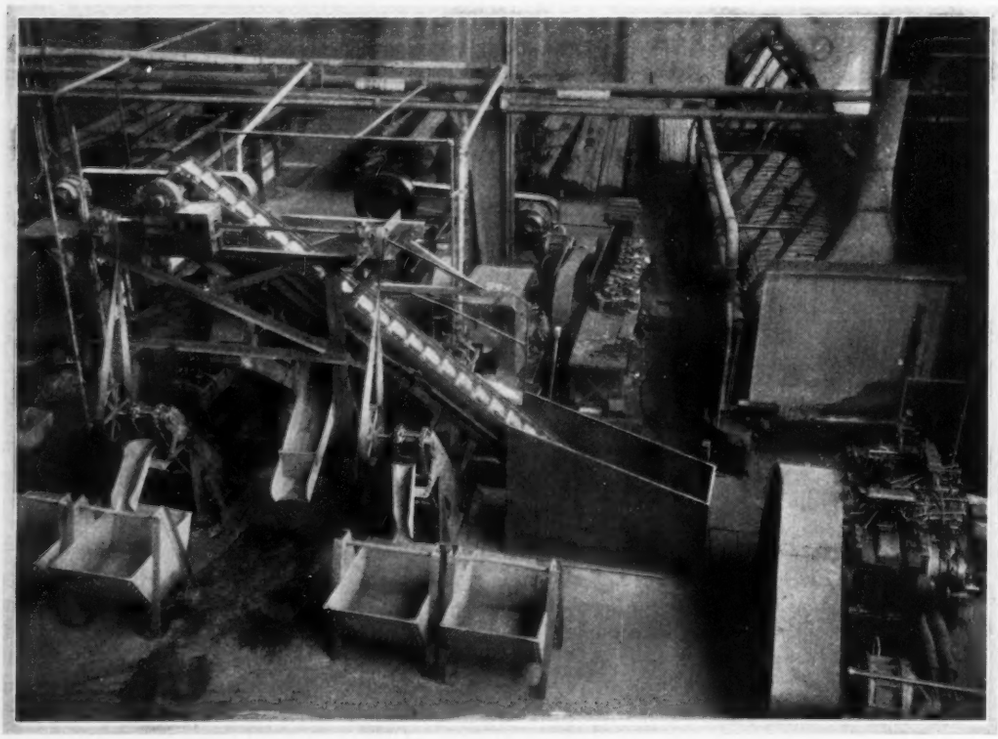
Manufacturing establishments of the country today use approximately 50 times as much electric power equipment as they did at the beginning of the century, according to a study of primary installed power development made recently by the national industrial conference board, New York. Another significant change in the use of electric power for manufacturing is noticeable in the growing trend toward increasing use of purchased current, that is current supplied by central electric power stations, instead of the original method of generating the current in the establishment where it was to be used. The iron and steel industry, however, is an exception to this trend; in 1925 it generated 54.8 per cent of its own power, this being about the only industry which did not purchase the greater part of its electric power. The total installed horsepower per wage earner in industry has increased from 2.11 in 1899 to 4.27 in 1925; percentage of electric power to total installed power equipment has increased from 4.9 in 1899 to 73.0 in 1925.

A. C. Williams Co., Ravenna, O., manufacturer of hardware, has completed a service building for its employes.

To Discuss Problems of Selling and Design

Problems of merchandising as well as problems of engineering design are prominent on the program of the sixth annual convention of the American Institute of Steel Construction, which meets in Biloxi, Miss., Nov. 12-17. Charles M. Schwab of the Bethlehem Steel Co. and Abram F. Myers of the Federal Trade commission are prominent speakers scheduled to address the convention. The United States army and navy departments will be represented by officials especially concerned with the design of housing facilities on flying fields. The addresses scheduled in the order of presentation are as follows:

"Legitimate Combinations for Better Business Conditions," by C. H. MacDonald, Colorado Fuel & Iron Co., Denver.
"Structural Steel in the Federal Building Programs," by J. E. Cassidy, consulting engineer, Washington.
"Welding as a Fabricator's Tool," by Fred T. Llewellyn, president, American Welding society.
"Flame Cutting of Structural Steel," by S. W. Miller and J. B. Dawson, Union Carbide & Carbon Corp., New York.
"The Work of the National Board of Fire Underwriters," by Clinton T. Bissell, associate consulting engineer, National Board of Fire Underwriters.
"Steel Joists and their Application to Structural Steel Buildings," by Frank Burton, consulting engineer, Detroit.
"Hangar Design as Developed to Meet the Problems of the Aviator," by Maj. Frank M. Kennedy, United States Army Air Corps.
"The Buyer's Attitude as Related to the Present Competitive Conditions Among Sellers," by L. F. Boffey, editor, the *Purchasing Agent*.
"The Character of Salesmanship Essential To Meet Present Day Economic Conditions," by C. K. Woodbridge, president, Kelvinator Corp., Detroit.
"The Legality of Uniform Trade Practices," by Hon. Abram F. Myers, commissioner of the Federal Trade commission, Washington.
"Beauty in Bridges," by Dr. J. Horace McFarland, chairman of the Pennsylvania state art commission.



ONE complete unit for making track bolts. The hot header is shown in the foreground. Beneath the conveyor are two thread rolling machines.

Large Uses of Steel in Small Ways

128th Article

Welding Rods

MORE than 2500 tons of steel is used annually in the manufacture of welding rods, for the joining of a wide variety of steel parts and structures. This amount is consumed in the fabrication of steel running into hundreds of thousands of tons annually. Rods suitable for use in the various welding processes generally are made in standard lengths of 36 inches, and diameters of 3/16, ¼, 5/16 and ⅜-inch. Some cast rods are furnished in lengths of 12 inches. The standard straight lengths are put up in bundles of 50 pounds net weight, and in kegs of 100, 200 and 300 pounds. Rods also are furnished in coils weighing from 50 to 100 pounds.

The rods are designed to produce a weld metal having physical properties equal or superior to those of the metal to be joined. The chemical composition of the high-strength welding rods used today, which develop the full strength of the parent metal, whether it be in the form of plate, structural shapes, pipe or castings, is a product of considerable metallurgical research, and each heat of steel to be used in the manufacture of the rods is rigidly required to meet specifications for chemical analysis and freedom from impurities, or else it is rejected. The manufacture of the best rods is a precise operation.

Oxyacetylene and arc welding processes are applied in innumerable ways to the fabrication of steel products, the repair of broken parts, and the building up of worn surfaces. In the production of steel articles this process often is found to be more economical than other methods of jointure and to produce a superior product. Notable among these are storage tanks and pressure vessels carrying high pressures and temperatures. In repair work, welding saves countless dollars to industry annually by eliminating the cost of replacement parts for machines and equipment and by obviating shutdowns.

During recent years one of the largest uses of welding rod has been for jointing overland pipe lines for the transmission of oil and natural gas in the West and Southwest. Modern pipe lines carry high pressures; therefore, permanently leakproof joints are essential.

Oxy-acetylene welding has become a standard method of joining the pipe sections.

Recently overland pipe lines 500 and 600 miles long have been constructed for the transmission of petroleum in the midcontinent field. Such pipe lines usually are 8 or 10 inches diameter, and the pipe used for this service ordinarily is furnished in sections averaging about 40 feet in length. Joints for pipe in these sizes require approximately 1½ and 2 pounds of welding rod each, respectively. There are about 132 joints per mile of pipe.

Some of the recent natural gas pipe lines average hundreds of miles in length. These are frequently constructed of large size pipe, up to 16 and 20 inches diameter, and carry pressures up to 450 pounds per square inch. The 16-inch pipe requires about 3½ pounds of welding rod per joint and the 20-inch pipe approximately 5½ pounds. These lines are jointed every 20 feet, or 264 joints to the mile.

Although pipe line construction is but one phase of industry that consumes steel welding rods, it is fairly representative, and will account for a comparatively large portion of the total welding rod used.

THIS is the one-hundred twenty-eighth of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the American tonnage.

Among articles appearing every two weeks and not included in Vol. I containing 51 separate descriptions are:

Swords	*Bathroom Fixtures*
Paving Guards	*Snow Fences*
Reaction Kettles	*Stairs*
Fire Screens	*Cork Screws*
Voting Machines	*Universal Shafts*
Display Racks	*Sewing Machines*
Steel Stamps	*Lanterns*
Wire Screens	*Cleats*
Typewriter Spools	*Axes*
Chain Hoists	*Steel Ceilings*
Newspaper-Vending Boxes	*Card Tables*

Most of Alloy Steel Tonnage Goes To Automotive Industry

Special Types Are Developed To Meet Service Demands of Light-Weight, High-Speed Motor Car— Uniformity Speeds Production

By W. J. MacKenzie

THE automotive steels in general use today are the nickel steels (S.A.E. 2000 series), chromium-nickel (S.A.E. 3000 series), chromium-molybdenum (S.A.E. 4000 series), chromium (S.A.E. 5000 series), chromium vanadium (S.A.E. 6000 series), silico-manganese (9200 series), and the manganese steels (G.M.C. 1300 series).

The bulk of these steels are made by the basic open-hearth process. The figures for 1927 show that approximately 81 per cent of the total tonnage of alloy steels of all types was made by this process. This 81 per cent is to a large extent used by the automotive industry, so that it will be fitting to limit this paper to steels made by that process.

Applications of Alloy Steels

It will serve to illustrate the properties of each alloy type, except the silico-manganese type, by considering these classes of steel as each having a carbon content of approximately 0.15 per cent, 0.30 per cent and 0.50 per cent. Those steels having 0.15 per cent carbon are case carburizing or surface hardening; those having 0.30 per cent carbon are water hardening except in small sizes or irregular sections; while those having 0.50 per cent carbon are oil hardening in all sizes. The alloy steels to be discussed are practically all used in the heat-treated condition, since it is heat treatment that brings out their full potentialities and makes them vastly superior to carbon steels. A few words will be said about each classification and its uses.

The addition of nickel to carbon steel increases the ultimate strength and hardness without decreasing the ductility. It lowers the hardening temperature of the steel and permits of obtaining great hardness through oil quenching. From a fabrication standpoint, this means simplified heat-treating operations and parts possessing greater freedom from scale, distortion and danger of cracking. The properties conferred upon steel by nickel can be manipulated to produce parts of great hardness and wear-resisting ability with reasonable toughness, such as is required in a clash gear; or these properties can be adjusted to a balance of strength and ductility that the part will withstand such severe shock and torsional stresses as are set up in axles or driving shafts. Nickel inhibits the grain-growing tendency of steel undergoing thermal treatment. For this reason, nickel steels are widely used for carburized parts.

The most important nickel carburizing steel is S.A.E. 2315. It is widely used throughout the automobile industry for parts wherein strength, case hardness, and freedom from distortion are all important.

Designers Now Work with Confidence

*IN THE early days of the automobile, little was known about physical properties required. More than one purchasing agent was left to use his own judgment in buying steel. Many a blueprint submitted by the engineering department for such parts as gears, knuckles, axles, etc., merely specified "steel," and it was up to the purchasing agent to get what he could and what he thought might work. We can all remember the number of times we were towed home as a result. These first cars showed the need of better steels; the alloy steels were tried and proved their possibilities. * * * The automotive engineer today designs his parts with full confidence that the steel specified, when properly treated, will have the desired physical properties.*

W. J. MACKENZIE

Its freedom from grain growth at carburizing temperatures makes it possible in many cases to omit the high temperature or core refining treatment subsequent to carburizing, thus effecting an operating economy and decreasing scaling, decarbonization and distortion, which is a great advantage with such parts as ring gears. This steel is widely used in different gears and pinions, and similar parts. A nickel carburizing steel used where the greatest core strength is demanded is S.A.E. 2512. After carburizing, parts made of this steel can be hardened at a temperature as low as 1325 degrees Fahr., which permits exceptional freedom from scaling and distortion. S.A.E. 2512 steel is used where great strength and toughness along with wearing properties are required, as in pinion gears, steering worms and similar parts for motor trucks. A semialloy steel containing approximately one-half of 1 per cent nickel is used for relatively unimportant and replacement carburized parts. Its advantage over carbon steel consists chiefly of a slightly tougher core and generally satisfactory hardness after oil quenching. This steel is designated as S.A.E. 2015.

2330 for Toughness

S.A.E. 2330 is a nickel forging steel. It is used where great strength and toughness are desirable, as in steering knuckles, connecting rods, highly stressed bolts, etc. It forges, machines and heat-treats easily, being water quenched excepting in small and irregular sections. Water quenching, subject to variable tempering temperatures, produces a tensile strength range of 125,000 to 225,000 pounds per square inch. Parts made of this steel are generally heat treated before finished machining, which operation can be done on a production scale so long as the hardness does not exceed about 300 brinell.

S.A.E. 2350 is a popular nickel steel which is used where severe service is encountered. With proper manufacture

and fabrication treatment, its potentialities represent probably the maximum combination of properties obtainable with a simple alloy steel. These properties are great strength, exceptional toughness, reasonable machinability, satisfactory depth of hardening, and great wear resistance. In the automotive industry this steel is used chiefly for oil-hardened transmission gears, and various highly stressed parts in truck and tractor construction.

The addition of chromium to steel greatly increases the hardness and wearing quality. By proper adjustment of composition and thermal treatment, chrome steel can be made to yield excellent service against the complex stresses that prevail in a steering knuckle or to withstand the severe abrasion that is applied to hardened transmission gears. By reason of its tendency to promote a fine grain and to increase the depth of hardening, chromium in steel facilitates the heat treatment of large sections and decreases the necessity for drastic treatment of small sections.

Used In Carburized Parts

The chromium steel in general use with the lowest amount of carbon is S.A.E. 5120. A considerable amount of this steel is used in case-carburized parts, for which purpose the carbon is usually specified below 0.22 per cent. This steel machines, carburizes and hardens readily, producing a very hard case. It is used for piston pins, bolts, and some case-carburized gears.

No. 5130, while not an official S.A.E. number, in following the S.A.E. system of classification designates a widely used chromium steel of the following analysis: Carbon, 0.25 to 0.35 per cent; manganese, 0.50 to 0.80 per cent; chromium, 0.80 to 1.10 per cent. This type of steel, usually with a restricted carbon range, is used for crankshafts, connecting rods, axles, and similar parts. It has a wide range of physical properties after a simple water-quenching heat treatment. Like the other water-hardened alloy steels, it is frequently heat treated before machining, which permits of the production of bright and clean surfaces on the finished part and generally eliminates straightening troubles.

S.A.E. 5150 is an oil-hardening chromium steel. It is used where high strength and great wear resistance are demanded. It finds extensive application in automobile transmission gears. The manufacture of the modern quiet-running automobile transmission presents many problems in highly controlled production annealing, specialized machinability and distortion-free hardening operations. To all these, properly made 5150 steel, with the restricted carbon range usually employed in the automobile industry, is readily amenable. A modified 5150 steel without an official S.A.E. number is rather widely used for springs. The analysis of this steel usually comes within the following range: Carbon, 0.47 to 0.52 per cent; manganese, 0.70 to 0.95 per cent; chromium, 1.00 to 1.20 per cent. Spring-forming and heat-treating operations in the automobile industry are usually done in continuous furnaces on a large scale production basis, so that the need for uniformity of successive heats of steel is imperative. Chrome spring steel fills this need admirably. After oil quenching at about 1550 degrees Fahr. and drawing at 900 degrees Fahr., it possesses sufficient strength to be resilient and has sufficient toughness to absorb road shocks, which is the combination necessary for an automobile spring.

It has been learned in developing steels for severe service that the addition of more than one alloying element is frequently of great advantage. The effect of some combinations of alloys is found to be much better than could be obtained with equivalent amounts of any one of the alloys alone. The combination of nickel and chromium in alloy steel illustrates this principle. The metallurgical influence of nickel is exerted on the iron or ferrite in steel, while the influence of chromium is confined chiefly to the carbon or carbide. This combination produces an alloy steel with a higher elastic ratio, greater hardness, and higher impact and fatigue resistance than is possessed by the simple alloy steels. It is a frequent statement throughout the automotive industry that properly treated nickel-chromium steels possess the maximum combination of desirable properties of any of the common S.A.E. steels.

3115 Carburizes Efficiently

S.A.E. 3115 is the nickel-chromium carburizing steel. This steel carburizes efficiently, producing a part with a strong core and a hard case. The strength of the case of a carburized part is largely dependent upon the strength of the core which supports it. For this reason, S.A.E. 3115 is advantageously applied in parts, such as some highly stressed beveled gears, where the case is subjected in service to a severe crushing action. Since it is cheaper than 2315 steel it is sometimes used in ring gears against 2315 pinions.

S.A.E. 3130 is the nickel-chromium forging steel. The strength, impact and fatigue resistance of this steel make it highly desirable for such parts as steering knuckles, drive shafts, severely stressed bolts, etc. It machines readily after heat treatment at any reasonable hardness. It may be water quenched excepting in small sections. Its deep hardening property permits of the uniform hardening of large sections. S.A.E. 3130 may justly be designated an all-purpose alloy forging steel.

S.A.E. 3150 is not an official S.A.E. number but is used to designate a nickel-chromium steel analyzing: Carbon, 0.45 to 0.55 per cent; manganese, 0.50 to 0.80 per cent; nickel, 1.00 to 1.50 per cent; chromium, 0.45 to 0.75 per cent. Steel with the carbon on the low side of this range is used for some crankshafts, pump shafts and parts requiring similar properties. It is admirably suited for heat-treated

(*Continued on Page* 1189)

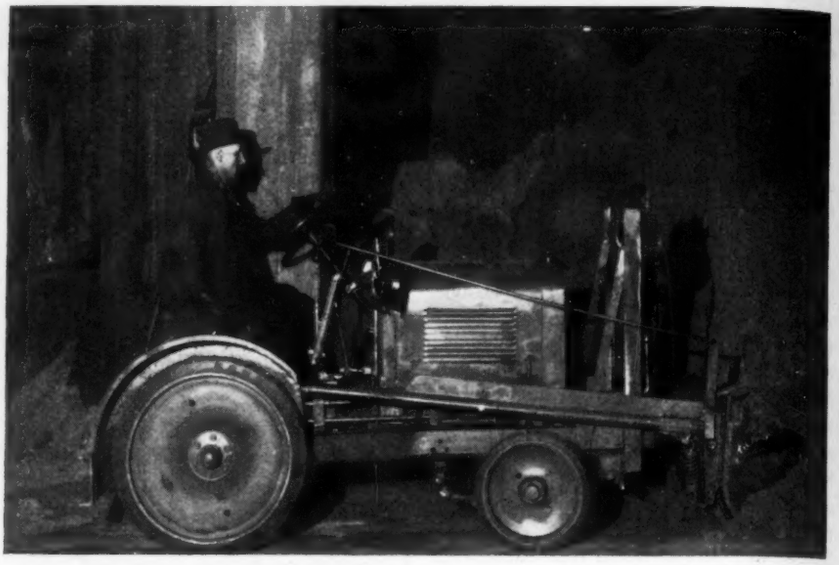
Alloy Steels Distinctly Automotive Types

STEELS used by the automotive industry are the carbon and the special, or alloy, steels. The carbon steels used are essentially of the same chemical composition as those developed for use in other fields and, with the advent of the automobile, were adopted, with some slight modification, by that industry for use wherever service conditions permitted. The alloy steels were developed commercially by and with the automotive industry and are distinctly automobile steels.

This material on the properties, specifications and applications of automotive steels herewith presented is taken from a paper read at the fall meeting of the American Iron and Steel institute at New York, Oct. 26. The author, W. J. MacKenzie, is vice president, Interstate Iron & Steel Co., Chicago.

Likewise, the article "Aircraft Will Need 5000 tons of Alloy Steel," by H. J. French, appearing on Page 1105 of the Nov. 1 issue of IRON TRADE REVIEW, *and the article "Acoustic Laboratory an Aid in Making High-Grade Musical Wire," by William Braid White, appearing on Page 1109 of the same issue, were taken from papers read at the institute meeting.*

Tractors Solve Haulage Problem In Cylinder Block Foundry



This low-lift sand digger rams into sand piles and scoops up load

IN FOUNDRIES, as in practically all other metalworking plants, much of the recent gains in operating efficiency have been accomplished through improvements in the handling of materials. This was particularly true in No. 3 foundry of the Lakey Foundry & Machine Co., Muskegon, Mich., where the production of gray iron castings for the automobile trade was increased considerably about a year ago.

One of the problems arising from the higher production rate was that of removing castings from the foundry after dumping the molds. The former practice had been to pile hot castings in one end of the molding floor and to allow them to cool before they were carried by a crane to the cleaning mills. The method required considerable foundry floor space, created an atmosphere filled with smoke and dust, and increased the shop temperature appreciably.

Use Cooling Platform

Under the present system castings are removed from the foundry to a semiexposed cooling platform, 160 feet long and 25 feet wide, with a steel plate floor. Here the castings are allowed to cool, are then taken to one end of the semiexposed platform, shaken out, and finally removed to the cleaning mills.

How the handling of cylinder block castings from the conveyor line to the cooling platform was solved by the use of tractors and trailers is described in a survey made by the A. C. Neilsen Co., engineers, Chicago, from which the material for this article is abstracted.

A fleet of six gasoline tractors manufactured by the Clark Trucktractor Co., Buchanon, Mich., is employed. Castings from the molds, with some core and molding sand, are picked off the conveyor line and placed on steel trailers by the aid of light overhead cranes. The trailers have caster-type steel front wheels and solidly mounted steel rear wheels. The casters are mounted in ball bearings and the rear wheel axles run in roller bearings. Front wheels are 10 inches in diameter with 3-inch tread; rear wheels are 12 inches in diameter and have 4-inch tread. The platforms are 6 feet long by 3 feet wide and stand 14 inches from the floor. Rails at each end prevent castings from sliding off. The weight of the trailer is 475 pounds and the loads carried range from 2½ to 3 tons. About 185 trailers are used.

As a load is ready at the conveyor a tractor drives up, couples to the trailer and hauls it to the cooling platform. Here the loaded trailers are spotted in rows along either side of a passageway. A tractor also is used to move the loaded trailers up to the shake-out station where the core sand is removed, and to haul the castings from the shake-out platform to the mill for final cleaning.

The hauls from the floors to the shake-out table range from 354 to 268 feet and the average distance

Operating Cost of Tractor in Motor Cylinder Block Foundry

ANNUAL CHARGES		
Depreciation on first cost plus freight, $1290 (3-year life)		$430.00
Average interest @ 6% (4/3 X $1290 X 0.06/2)		51.60
Maintenance and repair (actual average per month per unit for past 5 months was $23.54—at rate of $282.48 a year)		
Allowance for labor and materials		400.00
Total annual charge		$881.60
DAILY OPERATING COST*		
Prorate of annual charge (275-day year)		$ 3.210
Gasoline (4.77 gallons @ $0.14)		0.668
Oil (0.93 quart @ $0.185)		0.172
Total for 15-hour day without labor		$ 4.050
per hour	$0.270	
operator's wage	0.600	
Total cost per hour with labor		$ 0.870
HAULING COSTS		
Haul from floor to shake-out		268 to 354 feet
Cooling platform, length		160 feet
Haul from shake-out to mills		200 feet
Tonnage of sand and metal handled (Average of 124-day period per day)		305 tons
Cost per ton (3 units working 10 hour day—3 X 10 X $0.87 ÷ 305 tons max.)		$ 0.0855

*Average for 124-day period.

from the shake-out to the mills is about 200 feet. Hauling is over rather rough concrete surfaces and in confined aisle space with two right angle turns on each haul which the tractors make.

Operating costs, based on average figures for four tractors over a 124-day period are given in the accompanying tables. Three tractors are assigned to Foundry No. 3 and the fourth to Foundry No. 5 for handling finished castings, loading of freight cars, etc. Loads range from 1½ to 3 tons.

One Auxiliary Tractor

The three units assigned to foundry No. 3 do not haul castings for the full 10-hour day. Two tractors do this with the third as an auxiliary. However, the three units are properly chargeable against this job and similar work to insure continuity of operation at all times during the 10-hour period. The average day for the machines is actually 15 hours, since they are used at night for general cleaning up and hauling of waste material.

During the 124-day period the average tonnage of metal and sand hauled as described was 305 tons per 10-hour shift. This is based on the actual metal in the castings, plus 20 per cent for sprues, gates and runners taken out at the mold dump, plus the actual core sand. It is considered that the core sand removed at the mold dump is offset by the molding sand clinging to the castings. The metal is all hauled from floors to shake-out to mills, and the sand is hauled from floors to shake-out.

Two sand digger tractors, shown in the accompanying illustrations, also are employed in the Lakey foundries for sand handling purposes.

Tractor carries its load from sand pile across yard to molds

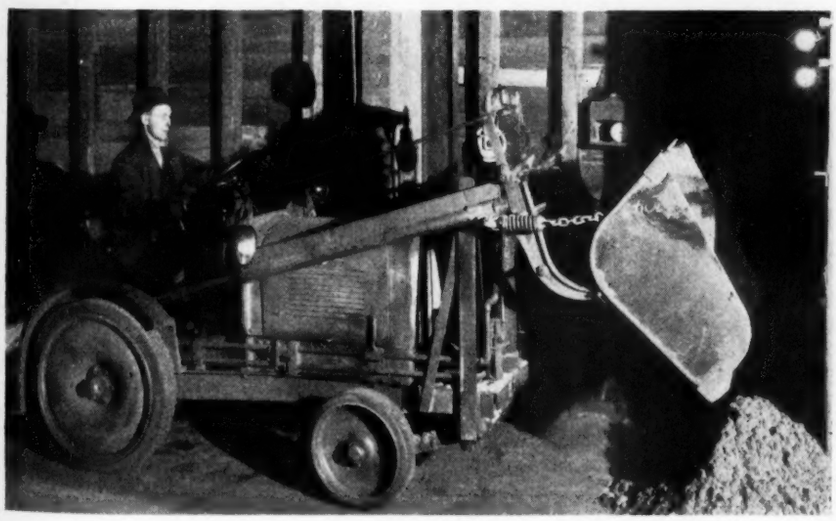
Approve Establishment of New Association

Unanimous approval by the 37 member bodies of the establishment of the American Standards association to succeed the American engineering standards committee, has been announced by William J. Serrill, former chairman of the standards committee and now president of the new standards association. One of the most important results of the abandonment of the committee form of organization will, according to Mr. Serrill, be a much greater degree of participation by trade associations in the direction of the national industrial standardization movement. Among the first acts of the new association will be the organization of a board of directors composed of 12 industrial executives. This newly created board, established in recognition of the increasing part which executives are playing in the standardization movement, will control the general administration and policies of the American Standards association.

Booklet on New England Survey Out

The department of commerce has just published the first of a series of booklets which are to cover the result of a survey of New England industry which this department has carried on in co-operation with the New England council.

This survey has been in progress for two years or more. The original intention was to publish the result in book form, but the investigators believe that a series of small pamphlets will be more practicable than large volumes, and that such pamphlets will expedite the delivery of valuable information. The first of the series is entitled, "The Retailer and the Consumer in New England." Other booklets will follow later.



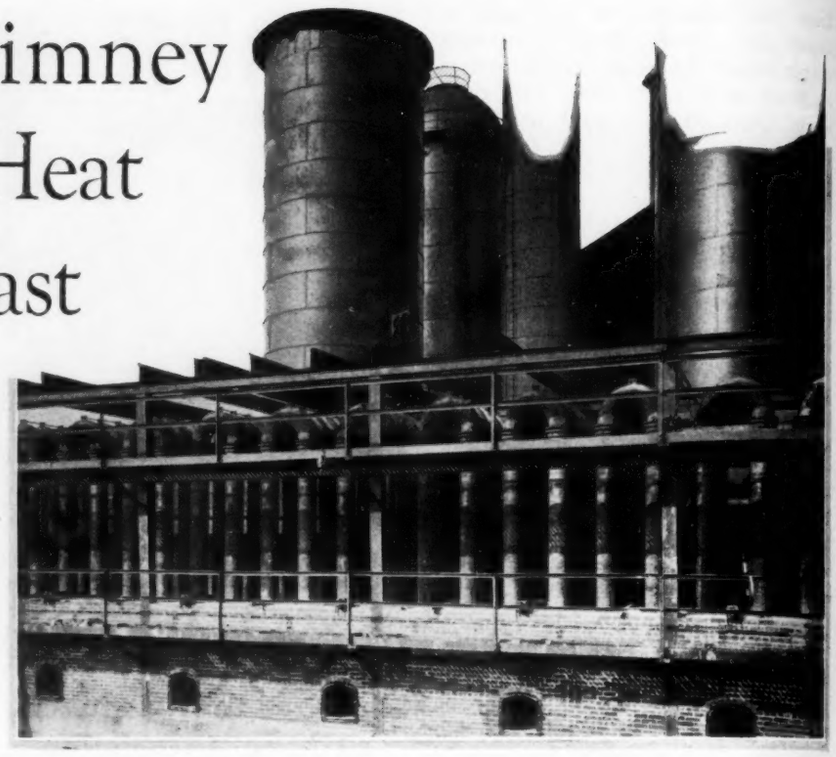
Sand digger tractor dumps its load at molding machine

Machinery Output Record

Production of machinery in Canada in 1927 was valued at $44,602,135, compared with $38,380,019 in 1926 and 10 per cent over the previous record of $40,535,474 in 1920. The number of firms engaged in the production of machinery in 1927 in Canada was 160, with an aggregate capital of $62,006,808 and employing 9947 persons, who received $13,094,050 in salaries and wages. They consumed raw material costing $15,277,973.

Utilizes Chimney Gases to Heat Cold Blast

Products of Combustion Admitted to Recuperator Increases Daily Melting Capacity of Furnace



Cast iron pipe recuperator for reclaiming part of the heat from the waste gases of hot blast stoves

WASTE heat in the gases exhausted from blast furnace stoves now is being employed for increasing the temperature of the cold blast before it enters the stove. This practice is being followed at one of the City furnaces of the Sloss-Sheffield Iron & Steel Co., Birmingham, Ala., through the medium of a recuperator designed by J. P. Dovel, vice president of the company.

The object of the recuperator is to transform the energy lost in waste heat in the chimney into useful work. This object is attained by removing this heat from the stack and concentrating it at the zone of melting, at which point it can perform the most useful work. The agency employed to attain this object is the air blast. The air from the blowing engines is heated by passing it through a coil over which the exhaust gases of the flue are allowed to circulate, and a sufficient amount of heat is returned to the furnace to make a noticeable addition to the daily melt, although the coke and flux are in no way altered.

An added effect is evident in that the cooling effect of the cold blast is not so noticeable on the stoves. The lack of this cooling effect permits the hotter operation of the stoves and also the longer operation of each stove before the air blast must be removed for the purpose of reheating.

The installation consists of a long chamber built of brick and lined with a heat insulating material. Within this chamber centrifugal pipe of the deLavaud type and made by the United States Cast Iron Pipe Co., Burlington, N. J., are placed in a vertical position and connected by U-bends to form eight or more parallel lines of 30 lengths per line. Each line is of 12-inch pipe which are connected to the U-bends by modified Anthony-type joints. At the end of each line is a header to which the air blast line is attached. The lines are supported at each bottom bend by a base cast integral with the bend which rests on the floor of the chamber. The tops are unsupported, but are tied together by tie rods. Fears of pipe failure were at first entertained because of the long unsupported lengths being subjected to the intense one-sided pressure of the air blast, but these fears were soon found to be unwarranted because of the inherent strength of the pipe, and the good design of the structure.

The hot gases from the flues are admitted to one end of the recuperator, circulate around the coils and emerge at the other end, from which point they escape into the chimney. A by-pass valve enables the hot gases to be cut off from the recuperator when it is necessary to clean out the ashes and other waste materials which from time to time collect within the chamber. This is necessary because the ash collects upon all exposed surfaces and, being in itself a good heat insulator, it reduces the heat

Abstract of an article presented in the September issue of *U. S. Cast Iron Piper*.

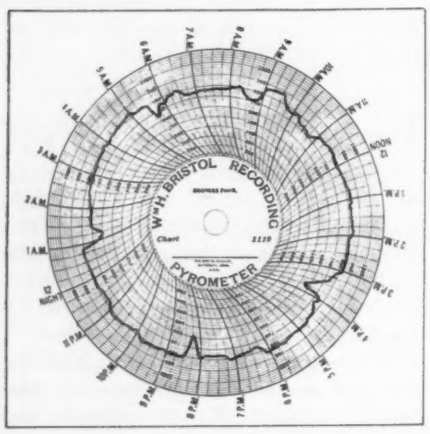


Fig. 1—Daily temperature of waste gases entering recuperator

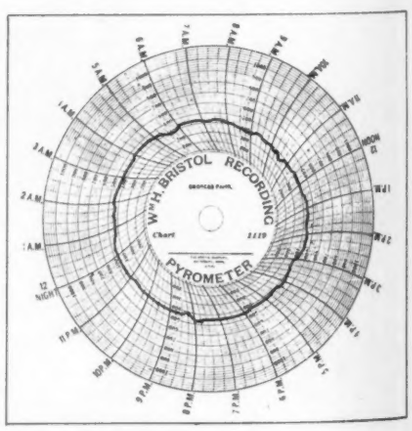


Fig. 2—Daily temperature of gases leaving recuperator

transfer within the coils of the recuperator. The chemical structure of this ash shows the presence of considerable carbonate of potash, and it is interesting to note that the corrosive action of this powerful alkali upon the exposed surface of the pipe is negligible.

Waste Product Utilized

Fig. 1 shows the daily temperature of the waste gases as they enter the recuperator. The temperature of the gases is seen to average about 800 degrees Fahr. Originally, this was the temperature of the gas in the chimney, and this heat was completely lost. Some of this heat now is utilized so that the essence of the whole recuperator principle is not one of added energy, but of energy originally wasted but now salvaged. It is a means of utilizing a waste product.

Fig. 2 shows the present operating temperature of the waste gas within the chimney. The difference between the heat of Fig. 1 and that of Fig. 2, namely, about 400 degrees Fahr. represents the heat energy which is salvaged and returned to useful work.

The air from the blowing engines comes from the atmosphere, and its temperature before compression is the temperature of the atmosphere, generally about 70 degrees Fahr. After its compression its temperature is about 180 degrees Fahr. Originally, the blast entered the stoves at this temperature. Now, however, the blast enters the recuperator to take on added heat before passing to the stoves.

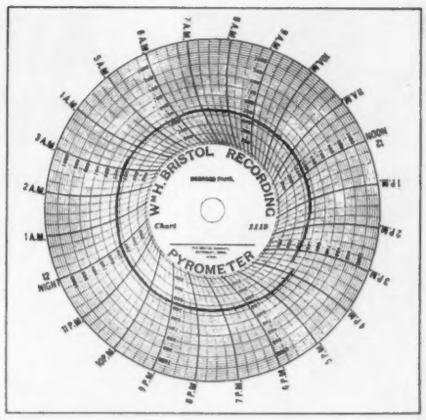


Fig. 3—Temperature of blast after passing through recuperator

The temperature of the blast to the stoves after passing through the recuperator is shown by Fig. 3, which indicates a constant value of 450 degrees Fahr. Therefore, the heat taken up by the recuperator amounts to about 270 degrees Fahr.

The ultimate result of the addition of this apparatus is to raise the daily melting capacity of the furnace. In other words, as the tonnage of the iron increases, using the same amount of coke, the ratio of iron to coke also increases. The furnace equipped with the recuperator is burdened on foundry iron and hence its operation must be checked more carefully than one making basic or bessemer iron.

Studies Characteristics of Spots in Steel

That soft spots in case hardened articles may be due to the kind of steel used has been confirmed experimentally by the bureau of standards. In research paper No. 14 the characteristics of the so-called normal and abnormal microstructure of the extreme types and intermediate gradations are described. On quenching in water structurally abnormal steel proved more prone to give soft spots. By quenching in brine uniformly hard cases were obtained in structurally abnormal and in normal steels. Most cases of abnormality in commercial steel seem to be associated with the use of aluminum for deoxidizing although normal steel also can be produced in other ways.

Purify Manganese by Unique Distillation Process

SUCCESSFUL purification of manganese by distillation recently has been achieved as a result of research work conducted by Dr. F. M. Walters Jr., director, and Drs. V. N. Krivobok and J. B. Friauf, associates, of the bureau of metallurgical research, Carnegie Institute of Technology, Pittsburgh. Metals of low melting points such as mercury, cadmium and zinc have been purified by distillation but manganese with its comparatively high melting point, 1244 degrees Cent., has presented a more difficult problem.

Although manganese is used widely in the steel industry, it has never been prepared in a pure form in any great quantity. The ordinary processes of reduction of manganese from its ores yield a product which contains several per cent of impurities. The electrolytic method, which is so successful in the refining of many metals is less applicable to the purification of manganese.

In the process used at the bureau of metallurgical research, crude metallic manganese was

placed in a pure magnesia crucible over which a similar crucible was inverted to condense the distilled metal. The crucibles were placed inside a silica tube 4 inches in diameter and 2 feet long, closed at both ends and connected to a vacuum pump. The central portion of the silica tube was surrounded by a water-cooled copper coil of about 30 turns, through which an alternating current was passed. Eddy currents were induced in the manganese and it was heated to its melting point. Under the low pressure maintained in the silica tube the molten manganese boils and sends off manganese vapor which is condensed in the upper magnesia crucible.

The distilled manganese, a piece of which is shown in the accompanying illustration, has a bright silvery luster which does not tarnish upon exposure to air. It is extremely brittle and hard enough to scratch glass. The purified metal will be used by the bureau of metallurgical research in a comprehensive study of the iron-manganese-carbon system.

Assembling floor showing method of continuous assembly in plant of Pratt & Whitney Aircraft Co.

Nickel Steel Used Extensively in Airplane Engine Parts

One Type of Nine-Cylinder Air-Cooled Fixed-Radial Power Plant Has 29 Different Units Fabricated from This Material

AS AVIATION and the use of heavier than air craft assume an increasing importance in the commercial life of America, likewise there accompanies it an industrial significance equally as important. To the metalworking industry a new field has been opened up which is requiring the development, treatment and fabrication of both steel and nonferrous alloys.

From the point of view of tonnage, the new industry is not a heavy consumer and probably never will require any great proportion of the country's output. But considering the value of the product, the manufacture of aircraft is substantial. In a paper presented recently before the American Iron and Steel institute, H. J. French, senior metallurgist, bureau of standards, Washington, stated that 1828 planes valued at $14,131,225 were built in 1927 and that conservative estimates would indicate the production of over 7000 planes in 1928, an increase of 380 per cent. About 90 companies are building aircraft, while over 12 produce engines. More than 10,000 engines should be built this year, it has been estimated.

Mr. French said one steel manufacturer has estimated 1929 will call for not less than 1500 tons of alloy steels for engine parts, 3000 tons of alloy steel for tubing, 100 tons of alloy steel for bearings and 50 tons of alloy steel sheet and strip. This total of nearly 5000 tons would have a market value of approximately $1,000,000.

Airplanes Require Alloy Steels

Practically all of the steel which will go into airplane manufacture will be of the alloy types, depending upon the weight and physical properties demanded by service. Engines will require the bulk of the tonnage. Nickel steel is one of the important alloys utilized and many of the engine parts are fabricated from it. In a recent bulletin, the International Nickel Co., New York, describes in an interesting way the application of this type of steel to the Wasp and Hornet-type engines manufactured by the Pratt & Whitney Co., Hartford, Conn.

The engines mentioned are both of the nine-cylinder air-cooled fixed-radial type. The detailed design is exactly the same; the primary difference is in size. The "Wasp" has a displacement of about 1340 cubic inches; the "Hornet" about 1700 cubic inches. The entire accessory end and blower or mounting section are the same for both engines. It therefore follows that the engines are readily interchangeable in the airplane. In fact, approximately 80 per cent of the parts of the two engines are interchangeable.

Dependable performance is secured through excellence of design and the use of structural materials of dependable mechanical properties. Nickel steels have been largely used throughout as will be seen from the following list of parts:

Front crankshaft, rear crankshaft, master rod, articulated rod, valve tappet roller, inlet and exhaust ball adjusting screw, exhaust valve rocker, inlet valve rocker, oil pump idler shaft, push rod ball end, magneto drive shaft, magneto coupling washer, thrust bearing cover ring, knuckle pin lock, crank pin washer, cam bearing spacer, propeller hub, crankshaft thrust bearing spacer, woodruff key, blower shaft, exhaust valve, exhaust valve plug, crankshaft rear gear, blower intermediate

gear, cam-inlet and exhaust, push rod rocker ball cup, push rod ball socket, clamp—propeller hub, gear—starter shaft.

The following parts in the rotary induction system are made from nickel steel:

Gear—impeller ring, gear—impeller drive, blower shaft, floating gear, blower intermediate gears, gear—crankshaft rear.

The main crankcase is divided in the plane of the cylinders into two similar sections which are united by nine through bolts between the cylinder flanges. The two halves are made of aluminum forgings, instead of the customary cast aluminum construction. This gives twice the strength of the casting for the same weight and cross section. With this construction the explosion forces are equally distributed between the two main bearings, one of which is carried in each half of the case.

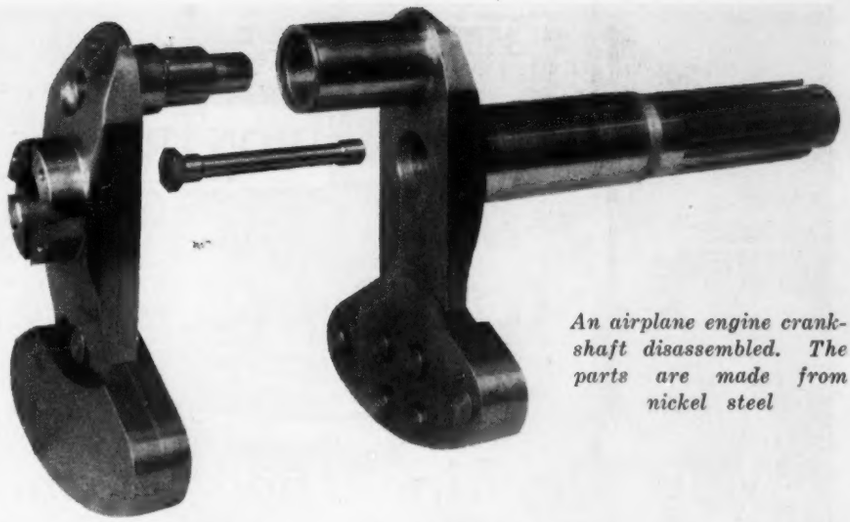
The nose, or front section of the case, is hemispherical in shape, and carries a deep row ball thrust bearing. The valve tappets are also carried in this section, which encloses the cams.

Blower Supports Engine

The blower or mounting section supports the engine in the airplane, and is attached to the rear of the main crankcase. The rotary induction system is carried in this section, together with its gearing. The mixture is fed through the impeller into an annulus in the blower section, and thence to the cylinders by means of tangential pipes.

The rear, or accessory section, is attached to the blower section. It carries all the accessories, including two magnetos, momentum starter, fuel pump, double carburetor, oil pump, tachometer drive, and two synchronizer drives. Provision is also made for mounting and driving a generator.

A unique feature is the division of the engine into two assemblies, the power section consisting of the main case, nose section, cylinders, crankshaft, connecting rods, etc., and the accessory section, including the blower and rear. The power section may be removed from the accessory section in the plane, and the latter left attached to the fuselage.



An airplane engine crankshaft disassembled. The parts are made from nickel steel

The crankshaft is built up of two sections. The forward or propeller section is integral with the crank pin, so that the power is transmitted through a solid shaft. The rear section telescopes into the crankpin, and is carried completely through it. The two sections are united by a through bolt, and kept in the proper angular relation by splines. The shaft is supported by two roller bearings, one on each side of the crank, as well as by the ball thrust bearing just behind the propeller. The counterweights are of steel mortised, shrunk, and riveted on the wedge-shaped crank webs.

The master connecting rod has a solid instead of detachable cap, big end. This construction makes possible high crank speeds which could not be obtained with the two-piece rod. Babbittt-lined bushings are inserted in the rod, and bear directly on the crank pin. Eight "I" section link rods are attached to the master rod by means of knuckle pins. Each rod is bronze bushed for both piston and knuckle pins. Oil is carried under pressure to the big end bearing, and also to the knuckle pins.

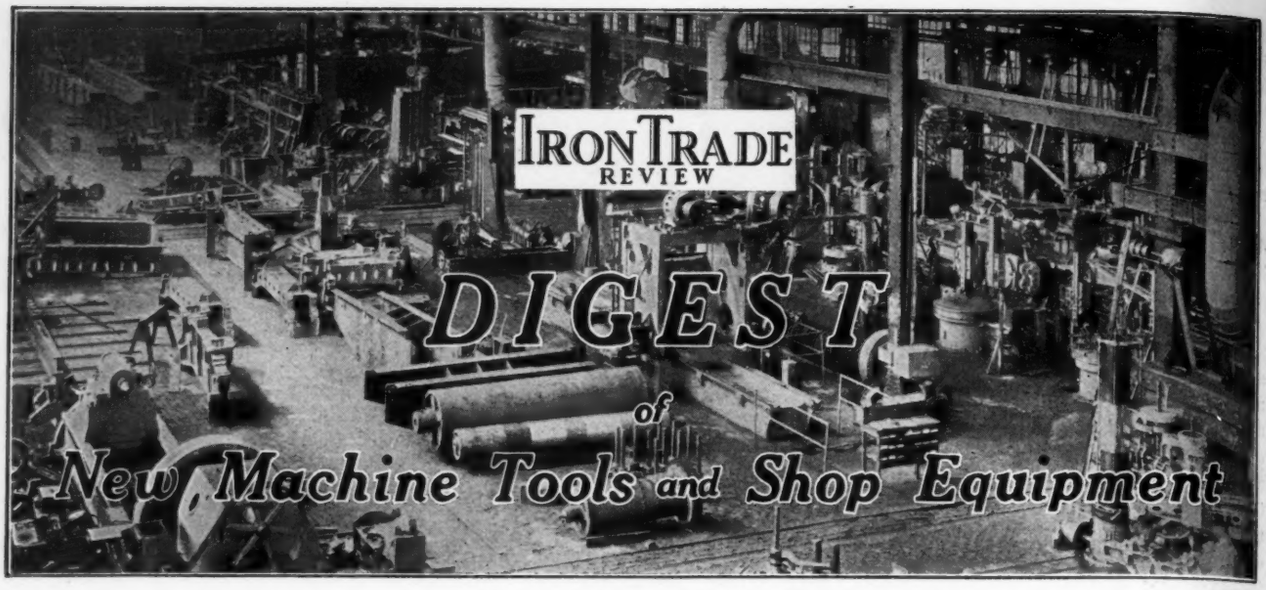
Aluminum Cylinder Heads

The cylinder is built up with an aluminum head screwed and shrunk upon a steel barrel having integral fins. A hemispherical combustion chamber is used, and the valves placed in a plane at right angles to the crankshaft with a large included angle which provides excellent cooling conditions, not only for the head, but around the valve seats as well. The valves are seated in aluminum bronze rings shrunk into the cylinder head. Particular care is taken to cool the exhaust valve guides which are extremely long for this purpose. A novel feature of the cylinder design is carrying the rocker arms in housings which are integral with the cylinder head, thus making it possible to completely enclose the valve gear. The cylinder head is well finned for maximum cooling, and the fins are carried up on both the exhaust and inlet ports.

The valves are operated by means of rocker arms and push rods from the cam drum located at the front of the engine. The push rods are enclosed

(Concluded on Page 1190)

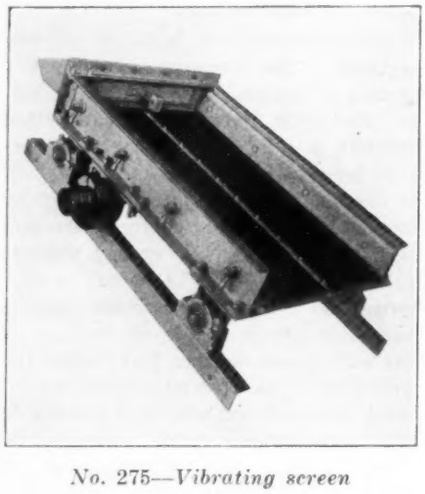
A Fokker transport used on Guggenheim Foundation model air line



Vibrating Screen Used To Reclaim Sand

No. 275

Link-Belt Co., 910 South Michigan avenue, Chicago, recently has developed a new setup for reclaiming foundry sand by use of the vibrating screen. The equipment consists of an inclined belt and bucket elevator; a feed hopper for receiving the sand from the elevator and delivering it to the screen; a double deck vibrating screen, with a steel hopper under the lower screening surface for collecting the "fines"; and a two-way discharge chute from the ends of both screening decks, for discharging the "rejects" into receptacles. A standardized structural steel frame is furnished for supporting the screen as well as the head of the bucket elevator. The supporting frame carries also a countershaft which can be driven from any standard source of power, and from which the elevator head shaft is chain driven, and the vibrating screen is belt driven. The vibrating screen unit itself consists of a screen box, the four corners of which are mounted on flat spiral springs, as shown in the accompanying illustration. The screen is mechanically vibrated through the combined action of its counterweighted unbalanced driving pulley and the four springs.



No. 275—Vibrating screen

Announces Mechanically Operated Brake

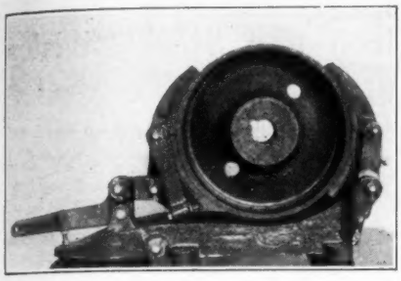
No. 276

Electric Controller & Mfg. Co., 2700 East Seventy-ninth street, Cleveland, has announced a new type of brake arranged for lever opera-

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Truing fixture	For truing circular cutters	Gleason Works	247	Oct. 4	843
Shaper	Wide range of speeds and cross feeds	Cincinnati Shaper Co.	248	Oct. 4	843
Center lathe	Independent spindle and tools speeds	Bullard Machine Tool Co.	249	Oct. 4	843
Grinding wheel	Six abrasive segments clamped into chuck	Blanchard Machine Co.	250	Oct. 4	885
Riveter	Squeezes instead of hammers rivets into place	Chicago Pneumatic Tool Co.	251	Oct. 4	885
Electric drills	Portable, high speed, ¼-inch type	United States Electrical Tool Co.	252	Oct. 4	885
Draw-cut shaper	High duty type; 32-inch stroke	Linde Air Products Co.	253	Oct. 4	885
Shape cutter	Cuts with oxyacetylene blowpipe	Morton Mfg. Co.	254	Oct. 4	885
Assembly press	For use in chassis frame riveting installations	Hanna Engineering Works	255	Oct. 4	886
Drill	Operated by air motor; for close quarter work	Ingersoll-Rand Co.	256	Oct. 11	922
Cutting material	Substitute for diamond in diamond core drill bits	Sullivan Machinery Co.	257	Oct. 11	922
Boring tool	Drills variety of holes in wide range of materials	Schmidgall Mfg. Co.	258	Oct. 11	923
Compound crane	For double crane service on wide crane bay	Modern Pouring Device Co.	259	Oct. 11	923
Offset miller	For use in milling operations on screws and bolts	Oesterlein Machine Co.	260	Oct. 18	998
Arc welder	For heavy-duty work; operates from direct current	Westinghouse Electric & Mfg. Co.	261	Oct. 18	998
Trimming press	Forged steel side frames; other safety features	Chambersburg Engineering Co.	262	Oct. 18	999
Gas burner	For firing metallurgical furnaces	American Heat Economy Bureau Inc.	263	Oct. 25	1058
Arc welder	Gas engine drive; 60-300 amperes welding range	Westinghouse Electric & Mfg. Co.	264	Oct. 25	1058
Grinders	Portable electric; alternating and direct-current	Hisey-Wolf Machine Co.	265	Oct. 25	1059
Expansion joint	Double-guide construction; simple and rigid	Tobias Miller	266	Oct. 25	1059
Die head	For application to automatic screw machines	Landis Machine Co.	267	Nov. 1	1125
Gear tester	Tests and laps spiral bevel and hypoid gears	Gleason Works	268	Nov. 1	1125
Friction saw	Circular steel blade mounted on movable carriage	Joseph T. Ryerson & Son Inc.	269	Nov. 1	1125
Slitting shear	Portable; can be mounted in a vise or on a bench	National Machine Tool Co.	270	Nov. 1	1159
Milling machine	Table-type; horizontal boring, drilling and milling	Giddings & Lewis Machine Tool Co.	271	Nov. 1	1159
Speed reducers	Herringbone gears; roller bearings	Farrel-Birmingham Co. Inc.	272	Nov. 1	1159
Speed reducer	Worm gear vertical-type; roller bearings	D. O. James Mfg. Co.	273	Nov. 1	1160
Valve operating unit	Motor-driven; automatic operation of valves	Cutler-Hammer Mfg. Co.	274	Nov. 1	1160
Vibrating screen	For reclaiming used foundry sand	Link-Belt Co.	275	Nov. 8	1188
Brake	Mechanically operated; shoe type	Electric Controller & Mfg. Co.	276	Nov. 8	1188
Pneumatic hammer	For cutting and knocking out rivets	Ingersoll-Rand Co.	277	Nov. 8	1189

tion for use on the bridge drives of electric traveling cranes, lift bridges, electric hoists and other applications requiring foot-operated or hand-lever operated brakes. The brake is of the shoe type and is a modification of the electrically operated brake made by the same manufacturer. Wearing parts of the mechanically operated brake are interchangeable with those of the electrically operated brake. Molded asbestos brake shoes of extra thickness are provided, as shown in the accompanying illustration, due to the increasing demands on brakes since the tendency to eliminate bearing friction was started.



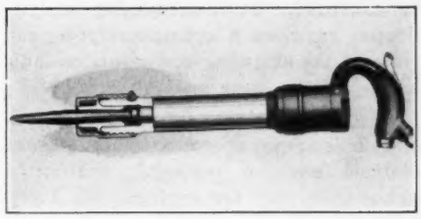
No. 276—Shoe-type brake

Pneumatic Tool Is Used To Remove Rivets

No. 277

Ingersoll-Rand Co., 11 Broadway, New York, recently has designed a pneumatic rivet remover for cutting off rivet heads up to ¾-inch size and for knocking out the rivets. The tool is said to be sufficiently light to be readily handled by one man, easy to hold and fast cutting. The nozzle end is finished with a heavy square-section thread, over which a retainer nut is screwed. This nut takes the blow of the hammer through a rubber buffer if the hammer is operated without the cutting tool being held against the work. When in actual operation the knob on the upper end of the tapered shank of the tool, as shown in the accompanying illustration, provides a shoulder for transmitting the blow through a split nozzle to the rubber buffer and on the retainer nut. This knob is claimed to have several advantages. It permits the use of light weight tools; it does not weaken the shank as would notches or grooves; and it provides safety since the chisel cannot be shot out of the tool. Three different tools of alloy steel are furnished for use in the device; a cutting chisel, a shearing chisel and a punch for knocking out the rivets.

Netting made of galvanized wire was put on the market in the United States in 1887.



No. 277—Pneumatic hammer

Most Alloy Steel Goes to Automotive Industry

(*Continued from Page* 1181)

forgings of large section. It is used in the automotive industry for severely stressed oil hardened gears. S.A.E. 3150 responds readily to the usual automobile fabrication processes consisting of forging, machining and heat treating.

S.A.E. 3240, S.A.E. 3245 and S.A.E. 3250 are used for parts subjected to severe conditions where great dynamic strength is needed. S.A.E. 3240 is used for shafts, while 3245 and 3250 are more generally used for gears. These steels are particularly adaptable to large sections because of the increased chromium content which permits of hardening to a greater depth, and subsequent grain refining by tempering.

The addition of vanadium to steel increases the tensile strength, the impact resistance and the fineness of grain. It is a denitrogenizer as well as a deoxidizer. It is used generally as an intensifying or secondary alloying element chiefly with chromium. The chromium-vanadium steels find a wide application because of their toughness and resistance to reversals of stress or fatigue. A very advantageous influence of vanadium in chromium-vanadium steel is the widening of the hardening temperature range which means that the steel is rendered less susceptible to the bad effect of fluctuations in the heat-treating practice. It is, therefore, a more "fool proof" alloy steel.

Used for Piston Pins

The low-carbon vanadium steel in general use is S.A.E. 6120. For carburized automotive parts, the carbon range of this steel is usually desired at 0.13 to 0.18 per cent. This steel is used for piston pins and various types of gears and pinions. Carburizing this steel produces a hard case having very great wear resistance. A modification of this steel has recently come into use in the automobile industry for ring gears and pinions. It has no numerical designation but is known as nickel-chromium-vanadium steel. The analysis specification is the same as for S.A.E. 6120 except for the addition of 0.50 to 0.75 nickel. The advantages of this steel consist of slightly increased strength and the fact that the high temperature or core refining treatment may safely be omitted in many instances, which helps to reduce distortion.

S.A.E. 6130 is the chromium-vanadium steel used for miscellaneous forgings. It is a very tough grade of alloy forging steel and finds wide application throughout the automotive industry for parts subject to shock. A rather wide range of forging temperature is permissible which is an advantage in a high production process. A 6130 steel can be quenched in water or water solutions except in small sections. It is fairly easily machined at a tensile strength as high as 150,000 pounds per square inch. It is used for steering arms, connecting rods, propeller shafts, etc.

Steel for Transmission Gears

S.A.E. 6150 is a high strength steel of good shock resistance. In the automotive industry, it is used chiefly for oil-hardened transmission gears. The problems attendant upon the production of quiet-running automobile transmissions, which are so necessary to the saleability of the modern closed car, have already been referred to. S.A.E. 6150 steel, properly handled, contributes to the solution of these problems. Gear manufacturers frequently find it necessary to resort to cyanide immersion in the hardening of transmission gears to reduce the tendency toward pitting of the gear teeth in service. The vanadium in chromium-vanadium steel helps to suppress whatever harmful tendency the nitrogen from cyanide may have. S.A.E. 6150 steel, usually with slight increase in the manganese and chromium contents over the S.A.E. standard, is widely used for springs throughout the automobile industry. It is probably the consensus of opinion that this steel represents the best material now available for leaf springs. The properties imparted to steel by the combination of chromium and vanadium render it well suited to resist the shocks, repetitions and reversals of stress that occur in spring service. The comparatively wide range over which chromium-vanadium steel may be heated without damage is of great advantage in spring manufacturing plants lacking close technical regulation of the forming and heat-treating processes.

The addition of molybdenum to common steel results in an increase in the hardening power of the steel and in its machinability at a given

hardness. Similarly to vanadium, the full effect of molybdenum is not realized except in conjunction with one or more of the other major alloying elements, such as chromium or nickel. The bulk of the steel containing molybdenum used to date by the automotive industry is in the form of chromium-molybdenum steel. The application of this comparatively new steel in the automotive industry is confined chiefly to the types S.A.E. 4130 and 4140. The advantages of chromium-molybdenum steel consist of a higher drawing temperature for the attainment of given physical properties, comparatively easy machinability at high hardness limits, great depth hardening properties and a good combination of strength and ductility. Chromium-molybdenum steel has not been considered successful for use in carburized parts. This is due primarily to the fact that the deep hardening properties of the steel result in too great hardening and hence embrittlement of the core. The carburizing steel of this series is a nickel-molybdenum alloy steel designated S.A.E. 4615.

Produces Case Hardness

S.A.E. 4615 steel has the ability to produce great hardness of the case on a carburized part with an oil quench. This, plus the fact that good core ductility may be had without the high temperature treatment, permits of the production of carburized parts with minimum distortion. Where the section permits of drastic quenching, a scleroscope hardness of about 100 may be produced by water hardening a carburized part of this steel. In the automotive industry, this steel is used for wrist pins, ball bearing races and similar parts requiring an extremely hard case.

S. A. E. 4130 and S. A. E. 4140 steels have been adopted by some automobile manufacturers for axles, steering spindles, steering arms, bolts, etc. The chief difference in the application of these steels lies in the fact that 4130 is a water-hardening steel, while 4140 is an oil-hardening steel. These steels are considered commercially machinable at a hardness as high as 350 Brinell. Molybdenum confers on these steels the quality of forming a flaky, non-adherent scale, which is quite an advantage in some forging processes. The combination of high elastic limit and high ductility favored by the high drawing temperature of these steels is advantageous in the parts for which they are used, such as axles. Steel in an axle should have a high elastic limit but must also possess good ductility to prevent sudden failure should this elastic limit be exceeded. Steel containing molybdenum requires a considerably longer time at the drawing temperature than a steel of the same analysis without it.

In the American automotive industry, silico-manganese steel is a specialized purpose material, ordinarily being used only for springs. S. A. E. 9260 steel is the type generally used. A typical leaf spring treatment of this steel develops a tensile strength of 200,000 pounds per square inch with a reduction of area of 20 per cent at a Brinell hardness of 415, which is an ample combination of physical properties for many automobile spring installations. This steel permits of a wider temperature range in forming and hardening operations than does carbon steel.

Nickel Steel Is Used in Airplane Engines

(*Concluded from Page* 1187)

by telescopic tubes. These cover tubes may be collapsed by hand, and bayonet locks are provided to retain them in this condition while they are being removed. Each rocker housing has a removable cover, held in place by a spring bail. By these means the entire valve mechanism is enclosed, and provision made for retaining its lubrication. Accessibility is provided by the quickly removable covers over each rocker arm.

The cams, which actuate all the valves, are carried on a sleeve on the crankshaft. A train of four spur and internal gears drives the cams at ⅛ crankshaft speed in the opposite direction to the crankshaft rotation. The cam drive gear on the crankshaft is not keyed to the crankshaft, but to the sleeve on which the cam itself rotates. The front end of this sleeve has a large number of serrations which mesh with similar serrations on the rear end of a sleeve which carries the propeller thrust bearing. These two sets of teeth are normally locked together by the thrust bearing nut.

The accessories are driven by three lay shafts which extend entirely through the blower and rear sections. Each shaft carries a spur gear at its forward end, which engages with a gear attached to the rear of the crankshaft. The upper shaft provides a drive for the starter and a generator if used. Each of the two lower shafts drives a magneto at its rear end, through a readily adjustable coupling. Besides this, two vertical drives from each shaft are provided by bevel gears. The upper drives are for the synchronizer heads and tachometer, while the lower shafts drive an oil pump on the right side and a fuel pump on the left.

The induction fan shaft is in line with the crankshaft and driven from it at high speed by two pairs of spur gears.

All highly stressed steel parts, such as the crankshaft and connecting rods, are completely machined and polished to facilitate inspection. Aside from the fine interior finish, great care is taken in finishing the exterior of the engine. The cylinders are enameled black, while the crankcases are finished with blue paint. All exposed steel parts are cadmium plated to resist corrosion.

Iron and Steel Division of Society To Meet

Many interesting papers on iron and steel questions will be presented at the second national meeting of the iron and steel division of the American Society of Mechanical Engineers to be held Nov. 14-15 at the Palmer House, Chicago. The Chicago section of the society is to act as host to the delegates and has arranged a lively program of technical papers, plant inspection trips and entertainment. The Gary, Ind., works of the National Tube Co. and the Illinois Steel Co., Acme Steel Co., and the Indiana Harbor plant of the Inland Steel Co., are included in the schedule of plant visitations. The program for the meeting follows:

Wednesday, Nov. 14

MORNING

Registration.

"Heat Economy Progress in Steel Mills," by F. H. Willcox, vice president, and Gordon Fox, electrical engineer, Freyn Engineering Co., Chicago.

"Sheet Rolling," by Leon Cammen, consulting engineer, New York.

AFTERNOON

"Powdered Coal Cupolas," by D. H. Meloche, American Radiator Co., New York.

"Hot Blast Cupolas," by F. K. Vial, vice president and chief engineer, Griffin Wheel Co., Chicago.

"Manufacture of Nickel Steel Plate," by Charles McKnight, development and research department, International Nickel Co., New York.

EVENING

"Some Observations on European and American Steel Plants," by W. Trinks, professor of mechanical engineering, Carnegie Institute of Technology, Pittsburgh.

"Taking Care of Depreciation and Obsolescence," by H. V. Coes, consulting engineer, Ford, Bacon & Davis, New York.

Thursday, Nov. 15

MORNING

"Nonferrous Bearing Metals," by L. E. Christopher, Buckeye Brass & Mfg. Co., Cleveland.

"Lubrication of Steel Mill Equipment," by L. P. Tyler, Vacuum Oil Co., Pittsburgh.

AFTERNOON

Plant inspection trips.

An agreement has been reached between Negaunee, Mich., and the Cleveland-Cliffs Iron Co., that the eastern half of the city is to be vacated for 15 years in order that iron ore mining operations may be undertaken.

Editorials

Pig Iron Now in Sellers' Market

ADVANCES in pig iron prices have followed one another with surprising swiftness in the past two months. As late as the middle of August few consumers anticipated the impending change in the market, and the few producers who professed to foresee it, and who warned their customers, were not given full credit for their prophecy. The downward drift stopped toward the end of August, and the last week of that month witnessed a definite upward turn. What has happened, what are the causes?

Foundry, malleable and steelmaking grades of iron have advanced $1.50 a ton in two months in the principal markets of the country. In the Chicago district foundry and malleable iron are $2.50 a ton higher than they were two months ago. The special reason for this increase in Chicago is the fact that heavy shipments of iron by vessel from Lake Erie furnaces all during the summer depressed the market there, while now the shipments have been stopped by reason of the scarcity of iron. The Chicago prices today are $20, base, compared with $17.50 two months ago. Valley prices are $18, against $16.50. Basic has gone up from $16, valley, to $17.50, and bessemer from $17, valley, to $18.50.

Steel production, setting a new high record this year, has taken many steelworks furnaces out of the market. Scrap prices have been steadily on the upgrade. Stocks of pig iron on blast furnace yards generally are lower today than at any time in five years. Consumers' stocks also are reduced. Foundry operations have been expanding. The buying movement in the pig iron market, and the reversal of the price trend indicate that industry discounted the result of the presidential election long before Nov. 6.

The Soul of the Institute

WHEN Mr. Schwab introduced Myron C. Taylor to members of the American Iron and Steel institute, gathered in New York recently, he said he was anxious to have him feel the soul of the institute. Mr. Taylor, who heads the finance committee of the Steel corporation, is a new member of the steel fraternity and he therefore may be expected to have a new appreciation of some of the characteristics of the institute taken for granted by old attendants.

Has the institute a soul? Certainly to those who have been privileged to attend the gatherings year after year—first under the wise guidance of Judge Gary and now in the contagious atmosphere of warmth and affection created by Mr. Schwab—to those who have watched the institute grow each year not only in numbers but in friendship—to those who have watched strong competitors put aside personal interest for the good of the industry—who have observed the growth of a true spirit of craftsmanship throughout a vast network of manufacturing enterprise—surely to those at least, the institute must have a soul.

The love of steel and of the processes of its production is firmly rooted in the hearts of the institute members. Classical music was an innovation at one of the technical sessions last week and Mr. Schwab seemed to express the sentiment of the members when he said that the real music to his ears was the whirr of machinery as good steel was being made.

Few large groups of men in the world have such a universal pride in an art as has the American Iron and Steel institute in the making of steel Perhaps this is its soul.

New England's Trend Is Upward

LOSSES totaling $8,000,000,000 annually must be laid at the door of inefficient distribution, according to Dr. Julius Klein, director of the bureau of foreign and domestic commerce, Washington, in discussing the second pamphlet of the New England marketing survey series. The purpose of this series, which has been prepared by the department of commerce and the New England council, is to develop the vitally important basic facts by which the business community can eliminate some of the elements of this enormous and unnecessary waste of distribution. The complete survey will eventually be published in three volumes. But in order to bring important data to the attention of New England business men with the least possible delay certain chapters in the form of bulletins are being issued. This second bulletin bears the title "New England Manufacturers and the Nation's Commerce."

The annual income of the people of New England derived from manufacturing exceeds $3,000,000,000, and constitutes 11 per cent of the total national income from manufacturing activity. The gross value of New England products is well

over double this amount, and nearly 10 per cent of the gross value for the entire United States. New England factories turn out some 217 kinds of manufactured products, and in the case of 51 of these each line brings in over $10,000,000 to the New England income.

The idea that New England industry as a whole is on a downward trend has no justification in fact, according to this second bulletin. In the volume of business reflected by check payment, car loadings, electric power production, sales of new motor cars and residential buildings, the district is following a definite upward trend.

Building Banks and Good Will

CRAFTSMANSHIP was recognized in a novel manner recently at the new building of the Union Trust Co., Detroit. Fifteen workmen and 15 foremen were each presented with $100 at a ceremony attended by officers of the bank, architects and contractors, and several hundred spectators. It was announced that the names of the workmen would be engraved on a bronze tablet, to be placed permanently in the lobby of the bank. The reason is best explained in the words of one of the bank officials, who said:

"We felt that the strength and beauty of a great building resulted primarily from the craftsmanship of the workmen who made the building possible. We also believed that the foreman of each gang of workmen had a great deal to do with the morale of the workmen he directed. For this reason $100 also is being presented to the foreman of every gang from which a prize winning workman was selected."

A special committee representing the owners, architects and builders selected the best workman from each of the various crafts represented from the time the first shovel was put in the ground to the placing of metal trim. The building will be completed early in 1929, when there will be a second award.

Detroit is the leading open shop city of the United States. The public recognition, cash awards and placing of the bronze tablet all bear evidence of the friendly relations between the real builders of that city, financiers, contractors and workmen.

Record Year Also in Nonferrous

COPPER has stood in the limelight lately on account of the rapid rise in price. The market value is not especially high, the action being more in the nature of recovery from profitless prosperity. The trend of the price this year has followed a gradual increase in domestic and foreign consumption of copper to levels never before attained.

This increase in use has occurred in some lines that always have been thought of as typically copper fields. The growth and improvements in radio, for instance, naturally would be expected to call for additional copper wire. And the case of the telephone is similar. It also followed with the increase in automobile manufacture that radiators would take more brass and copper, electrical parts would require additional copper, and so on in many instances.

The leading gains in copper use, however, have come in fields that were not thought of previously as belonging to this metal. The reference is especially to brass pipe in building and to copper sheets in building.

In its fight for prosperity copper and brass have been in close competition in the past few years with steel and with aluminum. And the salesmen for copper and brass have not by any means won all the battles. It is an outstanding fact that all three of these groups, copper, steel and aluminum, are setting new records in 1928.

British Steel Sees New Outlet

STEEL cars for English railways are being urged as a means for safety to passengers, following two accidents attended by loss of life. American railways have been replacing wooden cars with steel in passenger service for several years, until now scarcely a wooden car is seen in a railroad passenger train. The same process is being carried out more gradually in freight cars and eventually wooden freight cars may disappear also.

A decided movement for steel cars has been started in England and the question is being given considerable agitation. It is recognized that the transition will be costly to the railroads, which face depletion of financial resources as the result of events of the past few years.

Such an outlet would be a boon to the British steel industry, which needs some such aid to quicken the flow of tonnage. Means to finance the railroads in buying cars would have a buoyant effect on business in general, which would be reflected in added traffic for the carriers, assisting to pay for the replacement.

British railroads have been progressive and have given service of high class. Safety and speed have been attained, except in the matter of equipment. To substitute steel for wooden cars would add a final touch to a service already highly developed. Its secondary effect on business in England would seem worth while at this time, when mills are in need of tonnage.

IRON TRADE REVIEW

Volume 83, Number 19 — Published Every Thursday

E. L. SHANER, Editor. *J. D. PEASE, Advertising Director.* *F. F. LIGHT, Circulation Manager.*

Welding Rods Take More Than 2500 Tons of Steel Annually. Page 1179

HOW many tons of steel is consumed annually in welding rods? In sewing machines? Typewriters, card tables, paving guards, display racks, and screw drivers? What kind of steel is used? And how is it fabricated? For nearly five years now IRON TRADE REVIEW has been publishing regularly in alternate issues a brief but fact-full article about the many uses of steel requiring large tonnages. This was the first systematic plan relating to small steel products, a valuable and interesting record, and a worthy supplement to IRON TRADE REVIEW'S original surveys of steel consumption by major groups.

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IRON TRADE REVIEW is published by the Penton Publishing Co., Cleveland, O. Member, Audit Bureau of Circulation; Associated Business Papers Inc.; and National Publishers Association. Branch offices: 1147 People's Gas Bldg., Chicago; 209 Edwards Bldg., Cincinnati; 2208-2206 No. 220 Broadway, New York; 2148-49 Oliver Bldg., Pittsburg; 24 California street, San Francisco; 1653 Pennsylvania avenue, Washington; and Boston. Foreign offices: Prince's Chambers, Birmingham, Eng.; Caxton House, Westminster S. W. 1, London; 9 Rue de Londres, Paris, France; Wilhelmstrasse 114, Berlin, S. W. 48, Germany; Cable address: *PENTON*, Cleveland; *IROTRAPEN*, London. Terms: Subscription in United States, Cuba and Mexico, $6 per year; in Canada, $8.50 per year and in Great Britain and other countries £2:0:0 per year. *Entered at the Postoffice at Cleveland as Second Class Matter.* *Copyright 1928 by the Penton Publishing Co.*

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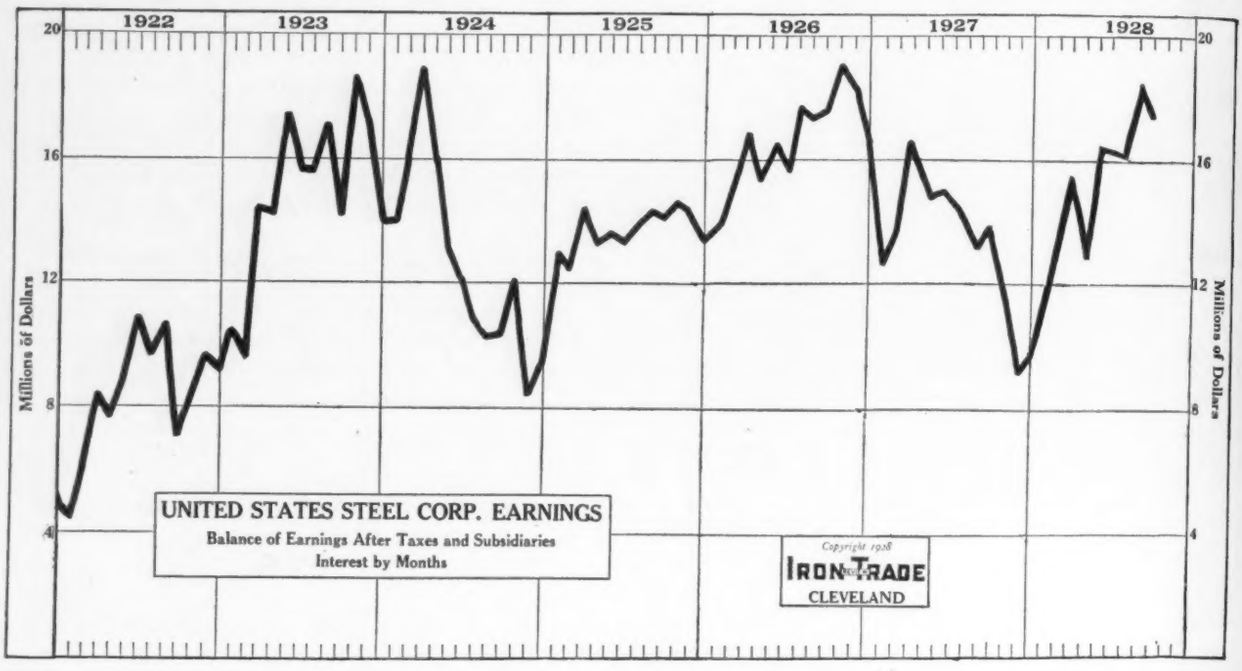
The Business Trend



Steel Company Earnings Improve

By JOHN W. HILL, Financial Editor

FOR the first time in recent years 1928 is showing a healthy improvement in the course of earnings in the iron and steel industry. Reports for the third quarter and nine months of practically all leading companies reveal increases over one year ago. All this reflects unusual productive activity together, recently, with some greater degree of price stability. From all indications the industry is entering a more prosperous era.

EARNINGS of the United States Steel Corp. reached their highest level of the year in the third quarter. Net after all charges, before dividend payments, was $29,886,259 compared with $21,585,425 in the like period of 1927, an increase of 38 per cent. For the first nine months the Corporation earned $77,086,888 against $74,050,623 in that period of 1927, a gain of 4 per cent.

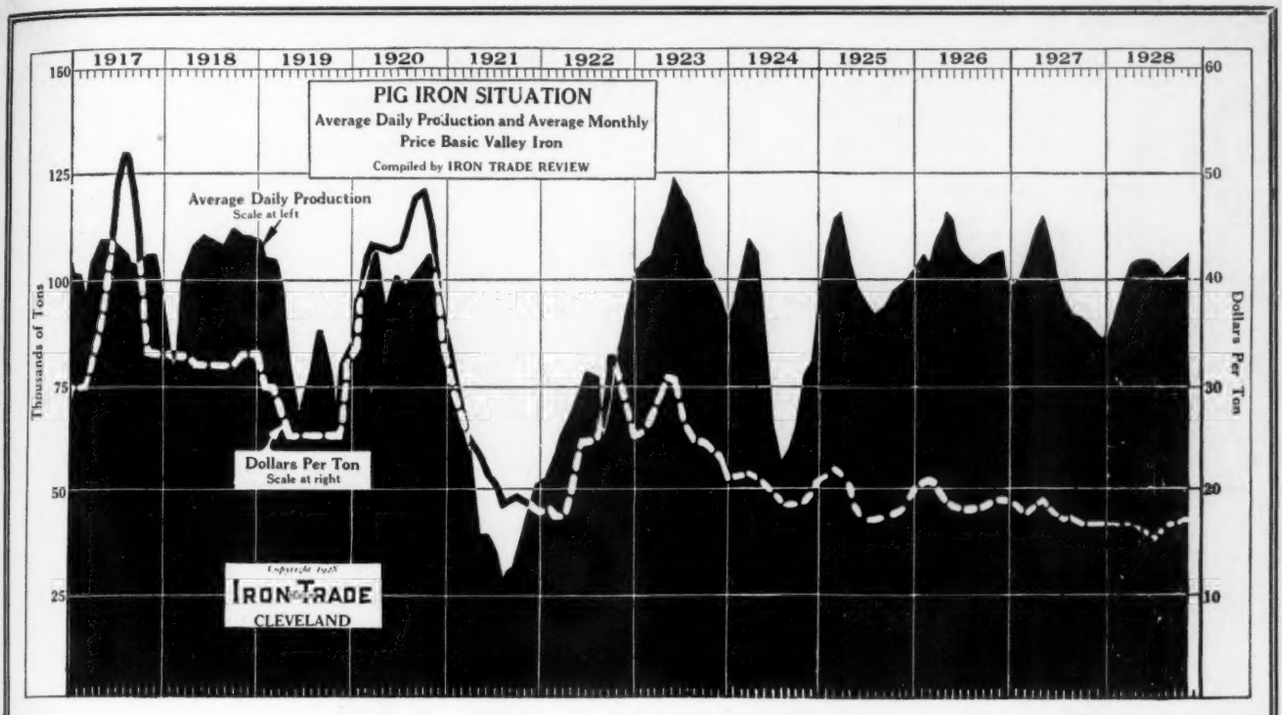
OTHER companies have made showings even more spectacular than that of the more steady-going Corporation. The Bethlehem Steel Corp., the largest independent, earned $10,491,832 in the third quarter against $2,788,053 one year before a gain of 276 per cent. The net reported by Bethlehem for the first nine months was $30,834,739, an increase of 128 per cent over the like period of 1927.

THE Jones & Laughlin Steel Corp. reported $4,504,905 for the third quarter against $2,607,013 one year before. This was a gain of 72 per cent. For the first three quarters the company had a net of $14,625,456, up 59 per cent from 1927. The Youngstown Sheet & Tube Co. with a net return of $2,717,965 in the third quarter showed a gain of 77 per cent. Its nine months' net was $6,872,371, which showed a gain of 17 per cent.

THE Inland Steel Co. reporting $2,089,439 against $1,244,021 had an increase of 68 per cent in the third quarter over 1927. Its nine months' earnings of $6,931,161 were up 24 per cent. The Wheeling Steel Corp. earned $1,408,670 in the third quarter, a gain of 58 per cent, while its nine months' increase was 44 per cent. The Republic Iron and Steel Co. with a net of $1,280,775 in the third quarter gained 156 per cent over one year before.

THE Central Alloy Steel Corp. reported earnings of $985,605 for the third quarter, an increase of 22 per cent compared with the like period of 1927. The Otis Steel Co. earned $950,786 against $249,186 one year ago, an increase of 282 per cent.

The Business Trend

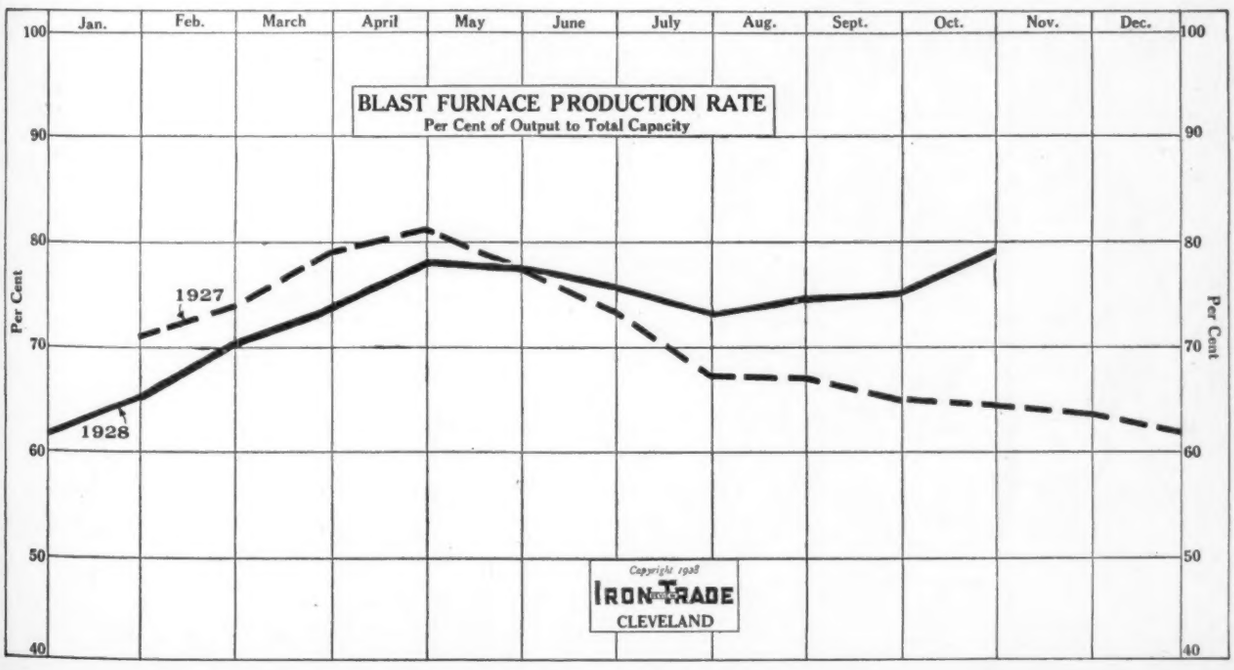

PIG IRON SITUATION
Average Daily Production and Average Monthly Price Basic Valley Iron
Compiled by IRON TRADE REVIEW
1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928
Average Daily Production
Scale at left
Dollars Per Ton
Scale at right
Thousands of Tons
Dollars Per Ton
150 125 100 75 50 25
60 50 40 30 20 10
Copyright 1928
IRON TRADE
CLEVELAND

Pig Iron Situation

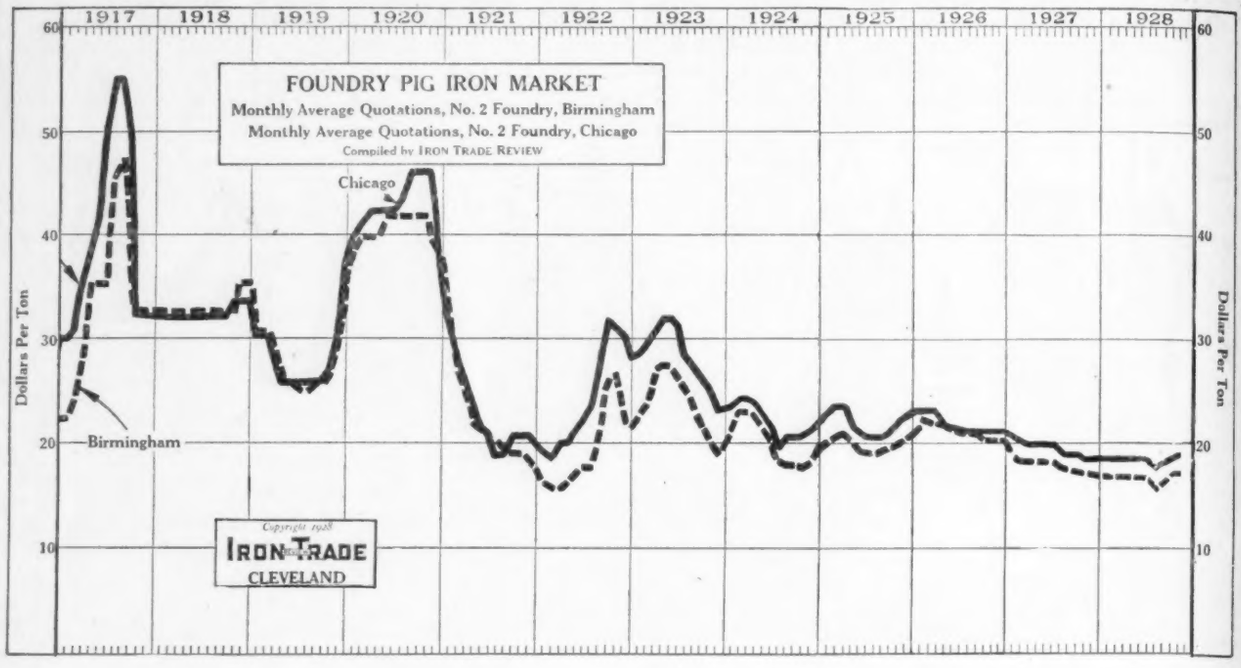
THE production of pig iron in October rose to the highest daily average in seventeen months. The daily average rate for the month was 107,549 tons compared with 102,-120 tons in September and 90,710 tons in October, 1927. The rise and output was forecast by the remarkable strength which has appeared in the pig iron market in the last few weeks. The production for the first ten months of the year stands at 31,117,786 tons compared with 30,929,041 tons for the corresponding period in 1927.

Blast Furnace Rate

THE rate of operation of blast furnaces in October was at the highest level of any month since April, 1927. During the month the production of blast furnaces was 79.3 per cent of the estimated capacity of the country's furnaces. This compares with 75.2 in September and 64.5 one year ago. The highest previous rate of operations for blast furnaces this year was in May at 78.3 per cent. The computation is based on the American Iron and Steel institute's estimate of capacity of 49,605,720 tons of pig iron.



The Business Trend

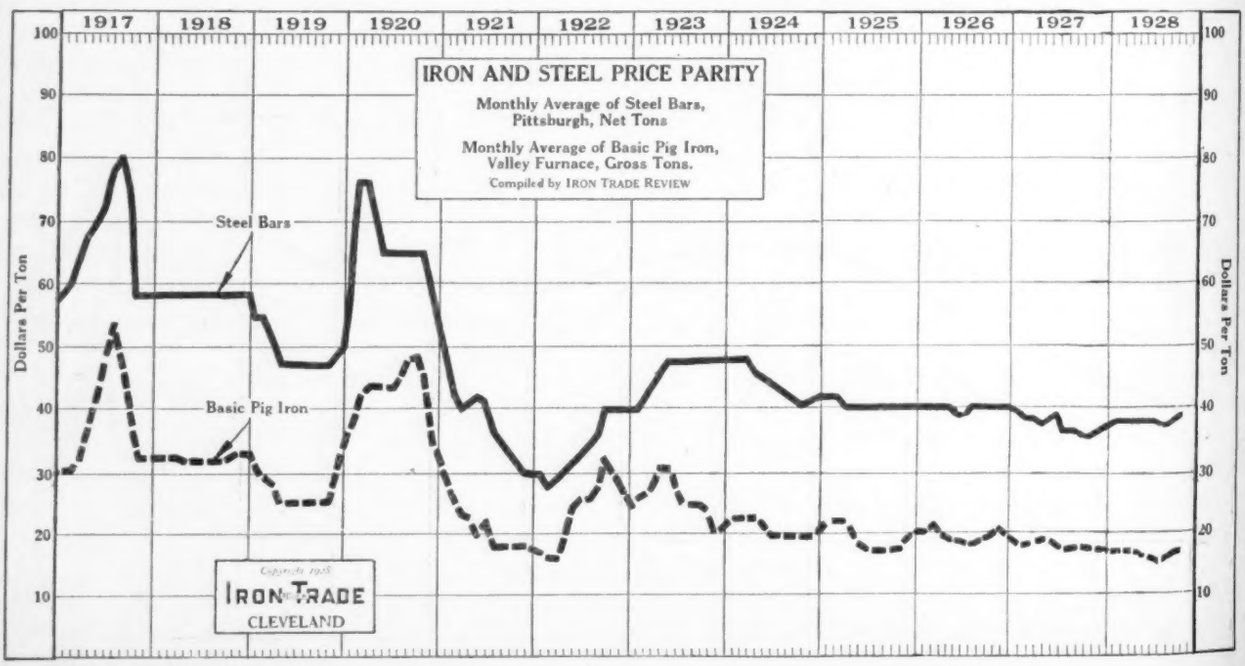


Foundry Pig Iron Market

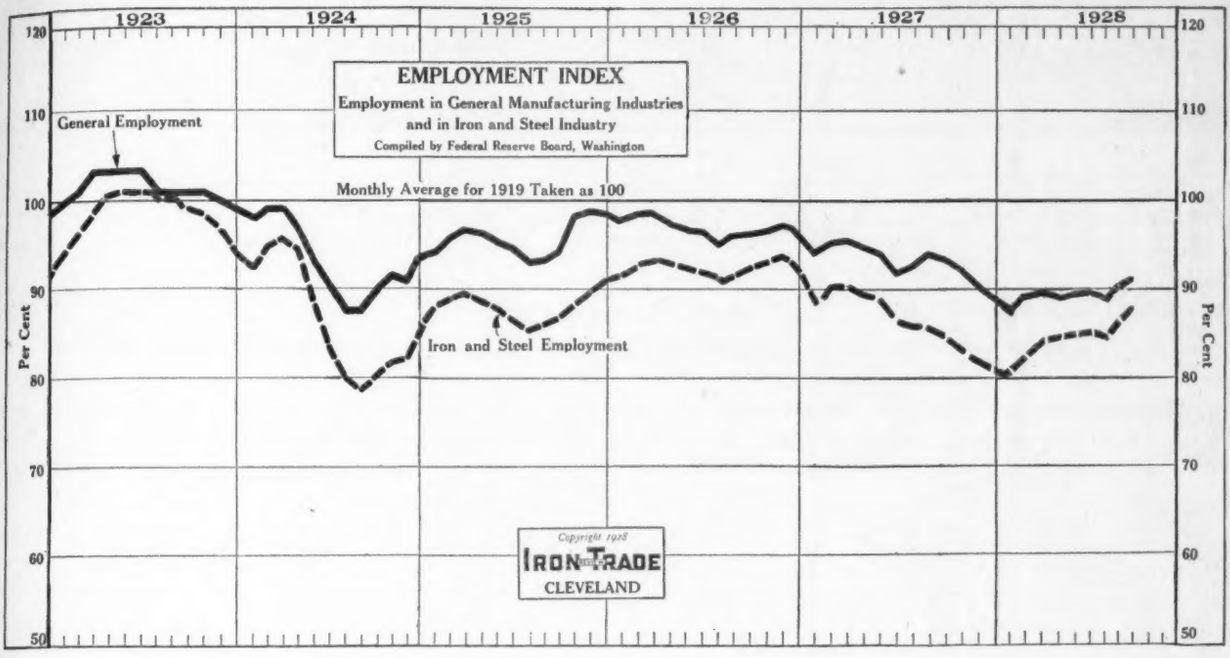
SOUTHERN iron has not shared in the sharp advances which have swept over the market for basic and foundry iron in the north. Southern No. 2 foundry Birmingham stood at an average of $16.25 a ton for October, unchanged from that of September although showing an advance over the low point of $15.50 a ton for July. No. 2 foundry Chicago, however, shows a marked increase with an average of $19 a ton for October compared with $18.30 for September and $17.60 for August.

Iron and Steel Price Parity

BASIC pig iron has made considerable progress in narrowing the large spread between finished steel and raw material in recent weeks. Standing at $17.50 a ton at the close of October, basic iron showed an increase of 12 per cent from the low point reached last summer. The average for October was $17 compared with $16.10 in September. Steel bars at $39 a ton in October show an increase of 2.6 per cent over the preceding month and of 6 per cent over the low point for the year.



The Business Trend

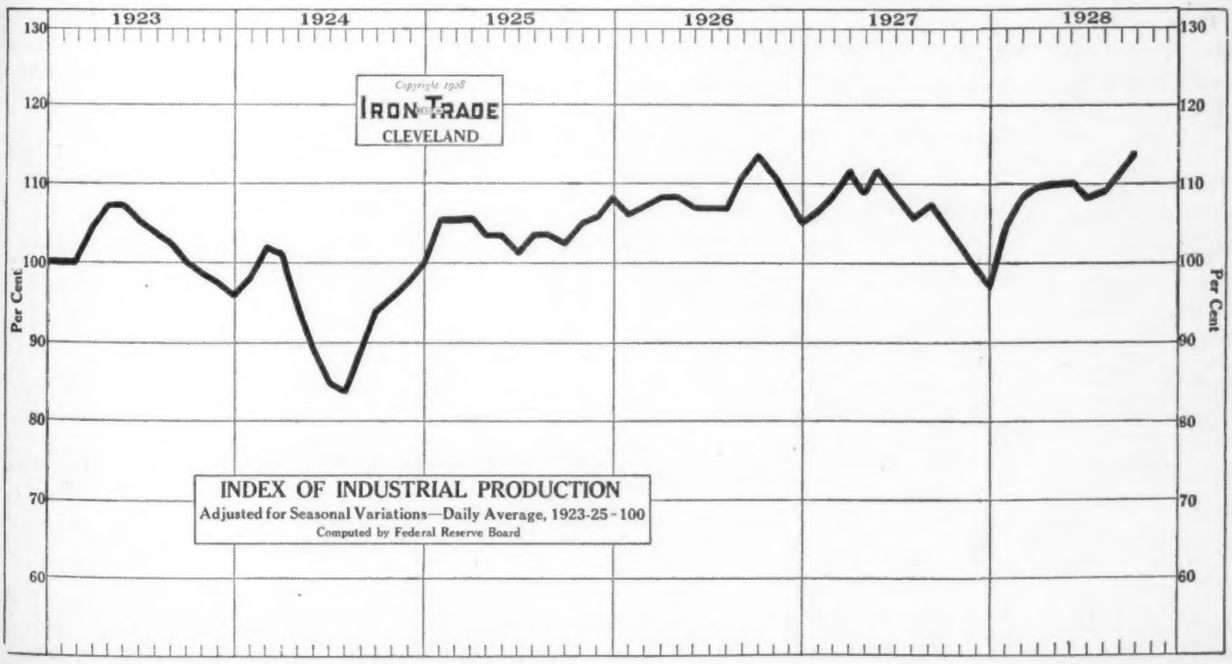


Employment Index

EMPLOYMENT in the iron and steel industry is now running at a level well above that of one year ago. The index of employment as computed by the federal reserve board at Washington, shows an index for employment in the iron and steel industry of 87.2 for September. This compares with an index of 86 one month before and with 84 one year previous. Employment in iron and steel mills has been steadily rising during 1928 in contrast with the steady falling off during 1927.

Industrial Production

THE production of manufactures in the United States in September was greater than in any other previous month on record. The index of industrial production computed by the federal reserve board stood at 114 compared with 112 one month before and 108 one year ago. The production of iron and steel and of automobiles climbed to extraordinary heights during September. This continued in October for a part of the month but later there was some curtailment, particularly in the automobile output.



Pig Iron Advances Spur Coverage

Sales Brisk Into 1929—Rail and Car Demand Broadens—Structurals Unusually Active for Season—Steel Prices Holding Recent Gains

RISING prices for pig iron seem to incite consumers not only to augment their purchases for the remainder of the year, when the iron is available, but also to cover into the first quarter of 1929. Sales in the past week of 61,000 tons at Cleveland and 45,000 tons at St. Louis, with heavy quiet coverage at Chicago and Pittsburgh—one recent transaction in basic iron in the latter district involving 60,000 tons—indicate the extraordinary activity.

Some Furnaces Sold Far Ahead

Some producers of pig iron are well sold through the first quarter. At least one merchant furnace, inactive for months, is resuming. To some extent the scarcity of iron is prompting consumers to order further ahead than has been their custom in the hand-to-mouth period, but on the whole consumption is well sustained. With iron advanced 50 cents per ton this week at Chicago, Cleveland, St. Louis, Detroit, and Toledo, and from 50 cents to $1 in the Pittsburgh and Youngstown districts, today's markets are the highest in 15 months.

Seasonal distribution of track material by the railroads, noteworthy buying of structural steel and continued good demand for pipe and tanks from the oil country come close to neutralizing the slightly easier tendency in general buying and the moderate recession in automotive steel requirements. Taking the steel lines as a whole, deliveries are more prompt and mill backlogs tend to shrink. But in price the situation remains as strong as at the peak of buying thirty days ago, and first-quarter advances are expected.

Railroad activity is topped by the distribution of 191,500 tons of rails by the New York Central, of which 84,000 tons will be rolled at Chicago. Three other carriers have ordered a total of 100,000 tons of rails from Chicago mills, prospective business from the North Western and Milwaukee roads aggregates 100,000 tons, and 125,000 to 150,000 tons is on inquiry. More than 18,000 tons of track accessories has been bought.

Look For 40,000 Cars at Chicago

Including 3300 for the Canadian National, car builders are figuring inquiries totaling 12,560 cars. The Wabash is out for 2000 cars, the North West-

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Nov. 7, 1928	Oct., 1928	Aug., 1928	Nov., 1927
PIG IRON				
Bessemer, del., Pittsburgh	$19.76	19.11	18.76	19.76
Basic, valley	17.50	16.85	16.00	16.00
Basic, eastern, del. eastern Pa.	19.75	19.75	19.00	19.50
No. 2 foundry, del., Pittsburgh	19.26	18.76	18.26	19.26
No. 2 foundry, Chicago	20.00	18.80	17.60	18.50
*Southern No. 2, Birmingham	16.25	16.70	15.65	16.50
*Southern Ohio, No. 2 Ironton	18.00	18.60	19.00	19.00
**No. 2X, Virginia furnace	20.50	20.50	20.00	21.25
**No. 2X, eastern, del. Phila	21.26	21.26	20.76	20.51
Malleable valley	18.00	17.35	17.00	17.50
Malleable, Chicago	20.00	18.80	17.60	18.50
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.76	18.26	18.01	18.76
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	94.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.90	2.80	2.75	2.80
Connellsville, foundry, ovens	3.75	3.75	3.75	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	33.00	33.00	33.00	34.00
Sheet bars, open-hearth, Pittsburgh	33.00	33.00	32.20	34.00
Billets, open-hearth, Pittsburgh	33.00	32.75	32.00	33.00
Wire rods, Pittsburgh	42.00	42.00	42.00	41.00

	Nov. 7, 1928	Oct., 1928	Aug., 1928	Nov. 1927
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.95	1.95	1.85	1.75
Steel bars, Chicago	2.00	2.00	2.00	1.85
Steel bars, Philadelphia	2.27	2.27	2.17	2.07
Iron bars, Chicago	2.10	2.00	2.00	1.85
Shapes, Pittsburgh	1.95	1.95	1.85	1.75
Shapes, Philadelphia	2.11	2.08	2.01	2.07
Shapes, Chicago	2.00	2.00	2.00	1.85
Tank plates, Pittsburgh	1.95	1.95	1.85	1.75
Tank plates, Philadelphia	2.15	2.15	2.10	2.07
Tank plates, Chicago	2.00	2.00	2.00	1.85
Sheets, black, No. 24, Pittsburgh	2.75	2.70	2.65	2.80
Sheets, blue anl., No. 10, Pittsburgh	2.00	2.00	2.00	2.10
Sheets gal., No. 24, Pittsburgh	3.50	3.50	3.50	3.70
Sheets, black, No. 24, Chicago	2.90	2.90	2.80	3.00
Sheets, blue anl., No. 10, Chicago	2.15	2.15	2.15	2.30
Sheets, galvanized, No. 24, Chicago	3.65	3.65	3.65	3.85
Plain wire, Pittsburgh	2.40	2.40	2.40	2.40
Wire nails, Pittsburgh	2.55	2.55	2.55	2.50
Tin plate, per base box, Pittsburgh	5.25	5.25	5.25	5.30
SCRAP				
Heavy melting steel, Pittsburgh	17.75	17.35	15.00	14.20
Heavy melting steel, eastern Pa.	16.00	16.00	12.75	14.00
Heavy melting steel, Chicago	14.50	13.75	12.65	11.50
No. 1 wrought, eastern Pa.	15.50	15.50	14.80	15.75
No. 1 wrought, Chicago	14.25	13.50	12.40	11.25
Rails for rolling, Chivago	16.50	16.40	15.00	18.95

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

STEEL PLATES

Pittsburgh	1.90c to 2.00c
Philadelphia, del.	2.15c to 2.20c
New York, del.	2.225c to 2.27bc
Boston, del.	2.265c to 2.415c
Chicago	2.00c to 2.10c
Cleveland, delivered	2.09c to 2.19c
Lackawanna, N. Y.	2.00c
Birmingham	2.15c
Pacific Coast, c.i.f.	2.20c to 2.30c

STRUCTURAL SHAPES

Pittsburgh	1.90c to 2.00c
Philadelphia, del.	2.08c to 2.11c
New York, del.	2.19c to 2.24c
Boston, del.	2.265c to 2.415c
Chicago	2.00c to 2.10c
Cleveland, delivered	2.09c to 2.19c
Lackawanna, N. Y.	2.05c
Birmingham	2.15c
Pacific Coast, c.i.f.	2.35c

BARS

SOFT STEEL

Pittsburgh	1.95c to 2.00c
Chicago	2.00c to 2.10c
Birmingham	2.15c
Lackawanna, N. Y.	2.05c to 2.10c
Pacific Coast, c.i.f.	2.35c
Cleveland	1.90c to 2.05c
Philadelphia, del.	2.22c to 2.32c
New York, delivered	2.24c to 2.34c
Boston, delivered	2.265c to 2.415c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c

IRON

Chicago	2.00c to 2.10c
New York, delivered	2.14c to 2.24c
Philadelphia, delivered	2.12c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh billet, cut lengths	2.25c
Stock lengths from mill	2.00c
Chicago, billet	2.30c to 3.00c
Chicago, rail steel	2.00c to 2.60c
Chicago, rail steel, road and bridge work	1.85c to 1.95c
Philadelphia, cut lengths	2.57c

COLD FINISHED STEEL

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.20c
Shafting (turned, polished) Pittsburgh	2.20c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.55c to 3.00c
Cold finished steel bars, Cleve.	2.25c

TIN AND TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.25

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.00c to 4.10c

*Price subject to quantity differentials.

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh base	2.75c
No. 24, Philadelphia, delivered	3.07c
No. 24, Gary, Lndiana Harbor	2.85c
No. 24, Chicago, delivered	2.90c
No. 24, Birmingham, base	2.90c

TIN MILL BLACK

No. 28, Pittsburgh, base	2.90c
No. 28, Gary, base	2.95c to 3.00c

GALVANIZED

No. 24, Pittsburgh, base	3.50c to 3.60c
No. 24, Philadelphia, delivered	3.82c
No. 24, Gary, Indiana Harbor	3.60c
No. 24, Chicago, delivered	3.65c
No. 24, Birmingham, base	3.65c

BLUE ANNEALED

No. 10, Pittsburgh, base*	2.00c
No. 24, Philadelphia, delivered	2.32c to 2.42c
No. 10, Gary, Indiana Harbor	2.10c
No. 10, Chicago, delivered	2.15c
No. 10, Birmingham, base	2.15c

*Plus 0.10 cents for 45 inches or wider.

AUTOMOBILE

No. 20, Pittsburgh, base,	4.00c

FURNITURE

No. 24, Grade A, Pittsburgh	3.85c to 3.90c
No. 24, Grade B, Pittsburgh	3.65c to 3.70c

(Turn to the following page)

ern for 725 and the Lehigh & New England for repairs to 200. In addition, the Milwaukee is understood to be maturing a program for 4000 and the Missouri Pacific for 3000. The more optimistic at Chicago believe 40,000 freight cars will be placed or be on inquiry by the end of the year. October freight car awards are tentatively placed at 2335, double the 1378 of September and triple the 886 of last October.

Rarely at this season has the structural market been enlivened by such awards as 17,000 tons for the Chrysler building in New York and 11,000 tons for a bridge at Longview, Wash., or by inquiries such as 28,000 tons for the Kill van Kull bridge at New York and 14,000 tons for a board of trade building and 10,000 tons for an armory at Chicago. Small and moderate-size jobs, however, are less numerous for seasonal reasons.

Plate Mill Outlook Is Good

In plates, too, tonnage requirements make the market topheavy. The Texas Co. has placed 5000 tons at Chicago for oil tanks. Fresh inquiry at Chicago totals 6000 tons. Tank work bought at Los Angeles requires 3915 tons. Four ships active at Philadelphia will take 13,000 tons, and a municipal pipe line there 9000 tons. If Chicago plate mills get their normal proportion of the 12,560 freight cars now on inquiry they will book over 50,000 tons. Orders from farm implement and automotive interests have made the past week one of the best in over a year for bar mills at Chicago. Bars at Pittsburgh are in better demand than shapes or plates. Sheet requirements in all districts have moderated and mills are catching up on deliveries. Hot strip is exceptional in that incoming business about offsets shipments. Manufacturers' wire is moving better than other wire products. The Texas Co. may place 75,000 tons of pipe for a 600-mile line. Eastern by-product coke interests have booked 75,000 tons for the first half.

Steel Price Situation Is Strong

Sheetmakers at Chicago are discussing a $2 per ton rise in blue annealed and a $3 rise in black and galvanized this week. Cast iron pipe is up $1 per ton at Chicago and $2 in New England. Wire interests may put up their prices shortly. A stronger first-quarter market on heavy steel also is a possibility. Scrap prices are reacting in most districts from their recent peak. It is significant that so large an outlet as the automotive industry has generally paid the recent advances on iron and steel products.

Steelmaking operations at Chicago have expanded, being nearer 90 than 85 per cent this week and 17 per cent higher than a year ago. Buffalo continues at 90 per cent. In the Mahoning valley independent producers are at 90 per cent. The national steel average is 87 per cent.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Nov. 6, 1928)	$35.81
Last week (Oct. 31, 1928)	35.73
One month ago (October, 1928)	35.93
Three months ago (August, 1928)	34.96
One year ago (November, 1927)	35.35
Ten years ago (November, 1918)	55.67
Fifteen years ago (November, 1913)	26.32

The twelfth consecutive rise in the IRON TRADE REVIEW composite of fourteen leading iron and steel products is provided by pig iron. This index gained 8 cents this week, now being $35.81, the highest since March.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED
SEE ALSO PRECEDING PAGE

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	1.90c to 2.00c
Hot strip, 6 1/16 to 24-in., Pitts	1.80c to 1.90c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut length, 1.90c to 2.00c plate basis, or 2.00c blue annealed basis.	
Hot strip, bands, under 3-in. Chicago	2.30c
Hot strip, bands, 3 to 6-in., Chi.	2.20c
Hot strip, bands, 3 to 12-in., Chi.	1.85c to 2.00c
Hot strip, 12 to 24 in., Chi. blue annealed sheet basis.	2.10c
Cold rolled strip, hard coils, 16 inches and wider by 0.100-inch and heavier, base Pitts., Cleve., (3 tons and over)	2.75c to 2.95c
Worcester, Mass. (3 tons and over)	3.00c to 3.10c

ALLOY STEEL

Hot Rolled
F.o.b. Mills

Alloy Quality Bar Base is 2.65c to 2.75c

S.A.E. Series Number	Alloy differential	Net, 100 lb. bars
2000	0.25	$3.00
2100	0.55	3.30
2300	1.50	4.25
2500	2.25	5.00
3100	0.55	3.30
3200	1.35	4.10
3300	3.80	6.55
3400	3.20	5.95
4100 0.15-0.25 Mo.	0.50	3.25
4100 0.25-0.40 Mo.	0.70	3.45
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.80
5100 0.60-0.90 Cr.	0.35	3.10
5100 0.80-1.10 Cr.	0.45	3.20
5100 Chrome Spring	0.20	2.95
6100 Bars	1.20	3.95
6100 Spring Steel	0.95	3.70
Chrome Nickel Vanadium	1.50	4.25
Carbon Vanadium	0.95	3.70
9250 (flats)	0.25	3.00
9250 (rounds, squares)	0.50	3.25

TUBING

Boiler
Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	42½
Charcoal iron, 3¼ to 4½-inch	9
Seamless hot rolled 3¼ to 3½-inch	56

Further discounts of six 5 per cents for 21,000 pounds or more on lap welded steel. On charcoal two 10's and one 2½ on 12,000 pounds or more.

COLD DRAWN SEAMLESS
F.o.b. mill in desirable quantities

Random lengths, over 5 feet	55 per cent
Selected lengths, 1 to 18 feet	53 per cent

WIRE PRODUCTS

To Jobbers in Carloads
F.o.b. Cleveland and Pittsburgh base
Dealers 10 cents per 100 pounds extra

Bright plain wire, No. 9 gage	2.40c
Annealed fence wire	2.55c
Galvanized wire, No. 9 gage	3.00c
Barbed wire, painted	2.95c
Barbed wire, galvanized	3.20c
	Per 100 lbs.
Wire nails	$2.55
Galvanized nails, plus differ.	4.55
Polished staples	3.00
Galvanized staples	3.25
Coated nails, 100 lb. kegs, Sept. 1, 1926 extras apply	2.55
Woven wire fencing (retailers) 12½ gage, 26-in. high, 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

CAST IRON WATER PIPE

Prices per net ton
Class B pipe

Six-inch and over, Birming'm	$36.00 to 37.00
Four-inch, Birmingham	40.00 to 41.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Four-inch, New York	40.50 to 41.60
Six-inch and over, New York	36.60 to 37.60
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.
Class A pipe is $4 higher than Class B.

IRON AND STEEL PIPE

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50*
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago, del., 2½ points less.
*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent on galvanized by 1½ points with a supplementary 5 per cent.

CHAIN, PILING, CUT NAILS

Cut nails, c.l., f.o.b. mills	2.70c
Cut nails, l.c.l. f.o.b. mills	2.80c
Chain, 1-in., proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c

RAILS, TRACK MATERIAL

Standard bessemer rails, mills	$43.00
Standard open-h'th rails, mill	$43.00
Relaying rails, St. Louis	$24.00 to 31.00
Relay rails, Pitts. 60 to 90 lb.	$22.00 to 27.00
Light rails, 25 to 45, mills	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand, jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago
Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.
Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off

Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.

Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-10 off
Upset 1 in. diam. and smaller	85-5 off

SQUARE HEAD SET SCREWS

Milled	80-10 off
Upset 1 in. diam. and smaller	80-10-10 off

RIVETS

Struct., c.l., Pitts.-Cleve.	2.80c to 2.90c
Structural, c.l., Chicago	3.00c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 6.90 off
Lock: To dealers	85-5 off
Lock: To consumers	85 off

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per gross ton

BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth	$33.00 to 34.00
Pittsburgh, bessemer	33.00 to 34.00
Youngstown	33.00 to 34.00
Cleveland	33.00
Philadelphia	38.30 to 39.30
Chicago	33.00
Forging, Chicago	38.00
Forging, Pittsburgh	00
Forging, Philadelphia	43.30

SHEET BARS

Pittsburgh	$33.00
Youngstown	33.00
Cleveland	33.00
Chicago	34.00

SLABS

Pitts., Young., and Cleve.	$33.00 to 34.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.85c to 1.90c

IRON ORE

LAKE SUPERIOR ORE
Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.55
Mesabi bessemer, 51½%	4.40
Old range nonbessemer 51½%	4.25
Mesabi nonbessemer, 51½%	4.25

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE
Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	10.50 to 11.00
North African low phosphorus	10.00 to 11.00
Swedish foundry or basic, 65%	9.00 to 9.50
Spanish and North African basic, 50 to 60 per cent	8.50 to 9.00
Newfoundland foundry, 55%	8.50

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	36 to 38 cents
Indian	35 to 38 cents
Caucasian (53-55 per cent)	38 to 40 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, imported duty paid, east, tidewater, net ton	$16.00

REFRACTORIES

FIRE CLAY BRICK
Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	48.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base	
Dead-burned grain magnesite	40.00

CHROME BRICK

Net Ton Chester, Pa., and Baltimore base	
9 x 4½ x 2½	45.00

Pig Iron

Sales Increase Despite Continued Advance in Prices—Large Inquiries Developing—Basic Tonnages Covered—Stacks Are Starting

WITH another advance of 50 cents in prices of pig iron in the Middle West the market is at its highest level in 15 months. Since the last week in August prices have advanced $2.50 in the Chicago district and $1.50 in the other principal markets. Despite the fact foundry and malleable iron now are selling at $20, furnace, in Chicago, $19.50 to $20 in Michigan and northern Ohio, and $18, valley, new orders show an increase due to the fact many melters with low stocks failed to cover sufficiently for fourth quarter. Sales by Cleveland interests totaled 61,000 tons in the past week. Over 45,000 tons was booked in the St. Louis district. Substantial sales of basic iron have been made at $17.50, valley, and more recently some small lots were taken at $18.

PITTSBURGH, Nov. 6.—Pig iron buying is fairly quiet. Most users of basic iron have sufficient to carry them through the remainder of the month and no additional large inquiries are appearing. The price consequently continues at the level of recent substantial sales to valley consumers and to one local steelworks, namely $17.50, valley. Two merchant stacks formerly on foundry iron now are producing basic, but steelworks continue out of the market. Foundry iron sales consist of a few carloads at a time. Most sellers now are quoting $18, valley, for No. 2 at which price a number of small lots have been placed. The tone is strong, but additional sales may be necessary to afford an adequate test at this level. Sellers are receiving some inquiries for first quarter, but consumers are not anxious to contract at present prices, while producers believe still higher levels are unlikely. Contract shipments are well maintained. Bessemer iron continues available at $18, although several sellers have none of this grade, and others are asking $18.50, valley. Malleable is stronger. Sales generally are made at $18, valley, but some small lots are reported to have been booked at $18.25 and $18.50.

The average sales price of bessemer iron in October was $17.528 against $17.195 in September, according to W. P. Snyder & Co. The average for basic in October was $17.28, compared with $16.50 in September.

Boston, Nov. 6.—A brisk pickup in sales of pig iron was noted in this district in the past week. About 8000 tons was booked, fully 70 per cent of which is for shipment in the last quarter. Mystic Iron Works sold 6000 tons. Gilbert & Barker Mfg. Co., Springfield, Mass., contracted for 1000 tons of No. 2X. Despite the fact prices are firmer, Buffalo and other New York furnaces are making concessions on attractive orders.

New York, Nov. 6.—Prices on pig iron have not become established at some of the advanced figures named recently. The market still is based on $17.50, Buffalo, for fourth and first quarters, although $18 and $18.50, base, Buffalo, continue as asking prices. Eastern Pennsylvania foundry iron continues $20 to $20.50, base, furnace. Demand for the higher silicon foundry irons is active. No. 1X (2.75 to 3.25 silicon) usually is $1 a ton above the 2.25 to 2.75 grade, which is 50 cents above the base grade. On malleable the price usually is 50 cents a ton above the base grade of foundry. Pig iron consumption continues heavy. Several good size inquiries are up for action. A sale of English low phosphorus iron is noted at $23, duty paid, tidewater.

Buffalo, Nov. 6.—Enough iron has been sold at the higher prices now in effect to establish them firmly for this quarter, it is reported by sellers. Foundry iron for local delivery is $18.50, base, with malleable at $19. Prices are lower for outside shipment. One of the principal furnaces reports having sold 90 per cent of its fourth quarter output and having taken a fair amount for first quarter.

Philadelphia, Nov. 6.—Prices of pig iron now appear definitely headed for an advance of 50 cents. Three eastern producers are naming $20.50, base, furnace, for foundry iron for delivery this year, and $21 for first quarter. A fouth producer expects to take similar action. Fair business in foundry iron is made up mainly of small and moderate sales. Good demand for basic and low phosphorus iron features the market, with considerable tonnage to be closed in the coming week. Buffalo foundry iron has not advanced during the past week, and continues to be offered at $17.50, base, Buffalo, for this and first quarter.

Cleveland, Nov. 6.—Recent advances in the pig iron market have failed to check buying. The volume of sales has increased with the upward movement of prices. The total for furnace interests with headquarters in Cleveland was 61,000 tons in the past week, compared with 42,000 tons in the week preceding, and going back before that consecutively, 38,300 tons and 26,800 tons. Cleveland furnaces advanced their prices another 50 cents to $18.50, base, furnace, for outside shipment and $19, base, furnace, for shipment in the local 50-cent switching area. Some of the orders in the past week from outside melters were booked at the new price, but no local business was done at the new figure. No differentiation is made between prices of iron for delivery in the remaining portion of this year and first quarter. Lake furnace prices west of Cleveland also are up 50 cents. The market in western Ohio and Indiana is $19, base, furnace, and in lower Michigan $19.50 to $20. Shipments continue heavy. Sales for first quarter have been fairly heavy, various makers reporting 25 to 40 per cent of their customers' requirements for that period covered. Northern Ohio steelworks have made substantial purchases of basic iron at $17.50, valley, following which some smaller sales are reported by merchant furnace interests at $18, valley.

The Toledo Furnace Co. relighted

(*Concluded on Page* 1215)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$18.00 to 18.50
Bessemer, del. Pittsburgh	19.76 to 20.26
Basic, valley furnace	17.50 to 18.00
Basic, del. Pittsburgh	19.26 to 19.76
Basic, Buffalo furnace	17.50
Basic, del. eastern Pa.	19.75 to 20.00
Malleable, valley furnace	18.00 to 18.50
Malleable, del. Pittsburgh	19.76 to 20.26
Malleable, del. Cleveland	19.50
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	19.00
Malleable, del. eastern Pa.	21.00 to 21.28
No. 1 foundry, Chicago furnace	20.50
No. 1X, eastern del., Phila.	21.76 to 22.26
No. 1X, Buffalo furnace	20.00
No. 2 foundry, valley furnace	17.50 to 18.00
No. 2 foundry, del. Pittsburgh	19.26 to 19.76
No. 2 plain, Buffalo furnace	18.50
No. 2 foundry, Chicago furnace	20.00
No. 2 foundry, Granite City	20.00
No 2 foundry, Ironton furnace	18.00
No. 2 foundry, del. Cleveland	19.50
No. 2 plain, del., Phila.	20.76 to 21.26
No. 2 plain, Virginia furnace	20.00
No. 2 plain, N. J., tidewater	20.01 to 21.28
No. 2 Alabama, Birmingham	16.25
No. 2 Alabama, del. Cincinnati	19.94
No. 2 Tenn., Birmingham base	16.25
No. 2 Tenn., del. Cincinnati	19.94
No. 2 Alabama, del. Chicago	22.26
No. 2 Alabama, del. Cleveland	22.51
No. 2 Alabama, del. St. Louis	20.67
No. 2X, east, N. J., tidewater	21.28 to 21.78
No. 2X, eastern, del. Phila.	21.26 to 21.76
No. 2X, foundry, Buffalo furnace	19.00
No. 2X, eastern, del. Boston	20.91 to 21.41
No. 2X, Virginia furnace	20.50
Gray forge, val., del. Pittsburgh	18.76
Low phos., standard, valley	27.00
Low phos., standard, Phila	24.26 to 24.76
Low phos, copper bearing fur.	23.00
Charcoal, Birmingham	28.00
Charcoal, Superior, del., Chicago	27.04
CANADIAN PRICES	
No. 2 foundry, del. Toronto	23.60
No. 2 foundry, del. Montreal	25.00
Malleable, del. Toronto	23.60
Malleable, del. Montreal	25.00
Basic, del. Montreal	24.00

Silvery iron, Jackson county (Ohio) furnace in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$40.50; 16—$43.

The Market Section

Coke

Heavy Shipments Going to Furnaces and Foundries—Consumers Not Buying Far Ahead

FOUNDRY and furnace coke shipments continue at a high rate and the markets are firm. Connellsville beehive coke producers are not lighting additional ovens and spot offerings are meager enough to maintain prices at $2.90 to $3 for the furnace grades. Two steelworks have found it unnecessary to continue contract arrangements for several hundred tons daily.

Pittsburgh, Nov. 6.—The beehive coke market is holding recent gains despite lack of additional strengthening factors. Two steelworks formerly taking several hundred tons daily find it unnecessary to continue the arrangement, but this has not weakened prices. Spot offerings show little increase and lack of surplus fuel enables sellers to maintain $2.90 and $3 for furnace coke. Producers are not sufficiently confident of the future trend to start additional ovens, while consumers are hoping for prices to weaken before the close of the year, and are not buying too far ahead. Shipments on contracts are holding to a high rate. Foundry coke is steady, with $3.75 to $4.85 generally applying on spot sales of various grades.

Production of coke in the Connellsville region in the week ended Oct. 27 was 65,090 tons, compared with 62,850 tons in the preceding week, according to the *Connellsville Courier*.

New York, Nov. 6.—By-product coke oven operators have opened their books on foundry coke for the first half; contracts placed involve about 75,000 tons. Shipments will be billed at prices ruling at the time. By-product foundry coke is $11, delivered at most New England consuming points, and $9 to $9.40, delivered at Newark, N. J. Specifications against second half contracts continue heavy and spot demand is good. Connellsville beehive foundry coke continues $3.75 to $4.25, Connellsville, while Latrobe operators continue to quote $4.85, Latrobe.

Cincinnati, Nov. 6.—Demand for foundry coke is active. Some manufacturers have difficulty in keeping up with orders. Prices are steady.

St. Louis, Nov. 6.—Specifying on metallurgical coke is generally satisfactory, with new business up to expectations. Relatively little outside fuel is entering this district. Fully 90 per cent of current business is for prompt shipment. Prices are unchanged.

Boston, Nov. 6.—Coke prices will remain unchanged for November. New England producers opened their books Nov. 1 for the first half and contracting is fairly active.

Birmingham, Ala., Nov. 6.—A shipment of 1100 tons of Alabama coke has been started to the Pacific coast for distribution there. Local consumption is steady, though one foundry has eased off in operation. Foundry coke is firm at $5, base, Birmingham.

Coke Prices

Prices per Net Ton	
Beehive Ovens	
Connellsville furnace	$2.90 to 3.00
Connellsville foundry	3.75 to 4.85
New River foundry	6.50 to 7.00
New River furnace	6.50
Wise county foundry	4.50 to 5.25
Wise county furnace	3.75 to 4.25
By-Product Foundry	
Newark, N. J., del.	9.00 to 9.40
Chicago, ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham	5.00
Indianapolis, del.	8.25
Ashland, Ky.	7.00
Portsmouth, O.	7.00
Detroit, ovens	8.50
Buffalo, ovens	9.00

Ferroalloys

Spiegeleisen Consumers Take Initiative for First Half

New York, Nov. 6.—While several consumers recently extended their spiegeleisen contracts through the first half of 1929, this action has not yet generally been followed. The consumers who closed did so on their own initiative and will pay the same prices during the first half as they are paying at present. Specifications continue heavy. Spot demand is fair, the price on this business being unchanged at $33, furnace, for 19 to 21 per cent. Moderate quantities of English spiegeleisen, mainly 24 to 26 and 26 to 28 per cent manganese, continue to be sold in this country. A few consumers of ferromanganese acted immediately when producers opened books for next year at $105, duty paid. Since then there has been little activity. A few spot sales also are noted at $105.

Contracts are being signed for special ferroalloys for next year at prices previously reported, mostly unchanged. Wolframite tungsten ore is firm at $11 a short ton unit.

Pittsburgh, Nov. 6.—Most spiegeleisen users have placed their requirements for the first half. Prices are unchanged from current quotations and although $33, furnace, for 19 to 21 per cent material, will rule on small orders, large tonnage users are able to contract at $30. Contracts for ferromanganese are being signed, but the majority of users have deferred action. The 1929 price is unchanged from the current quotation of $109.79, delivered, Pittsburgh, for 78 to 82 per cent. Specifications for spiegeleisen and ferromanganese are heavy and October tonnage showed a large increase over the 1927 period. Spot buying continues light but several sellers are requiring practically all of their output to meet contract demand and are not active in soliciting spot business. Ferrosilicon, ferrochrome and other alloys also are moving briskly.

Enameled Ware Is Off

Washington, Nov. 6.—Total shipments of enameled sheet metal ware in September declined slightly from August, department of commerce statistics show. Following are comparisons by months:

	In dozens			
1927	Total	White	Gray	Colored
September	310,823	172.241	114,669	23,913
9 mos. 3,000,454	1,586,812	1,244,875	168,767	
October	322,081	169,351	126,344	26,386
November	287.115	153.283	106,104	27,728
December	307.280	161,922	119,885	25,473
Tot., 1927....	3,916,930	2,071,368	1,597,208	248,354
1928				
January	319,871	155.172	132,136	32,563
February	372,848	179,794	131,485	61,569
March	442,689	200,010	152,895	89,784
April	351,034	143,470	123,808	83,756
May	348,661	158,458	116,541	73,662
June	299,078	141,486	95,959	61,633
July	277,684	125 653	108,584	43,447
August	358,811	164,580	134,191	60,040
September	352,484	172,127	130,337	50,020
9 mos 3,123,160	1,440,750	1,125,936	556,474	

Drop Forgers Are Busy

Worcester, Mass., Nov. 6.—Drop forging plants continue near capacity in central and western Massachusetts. Automobile business still dominates. The long-continued activity is resulting in many replacements and additions. Makers of crankshafts and other auto forgings have not experienced the slight recession in assembly reported from Detroit.

Electric welding was invented by N. de Benardos in 1885.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent domestic furnace	33.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	96.00
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

*These prices contract, spot $5 higher.

Scrap

Slight Downturn After Bulge of Last Week — Supply Slightly More Plentiful—Demand Good

REACTION from the strength of last week has brought declines of about 50 cents per ton on several grades in several consuming markets. Supply is better in some instances. Observers do not believe the weakness is a definite turn. Chicago market has not felt the reaction seen in eastern centers.

Chicago, Nov. 6.—Despite a slightly easier condition in several eastern markets, iron and steel scrap in the Chicago district remains strong. Dealers have taken some short orders in the past few days, but the short movement is by no means pronounced and is not checking the general upward trend. Railroads are getting high prices for melting steel, now $14.50 to $15, a tonnage sale having been made to a steelworks consumer at $15 for the best grades. This sale is understood to have approximated 25,000 tons. It is indicated that actual sales at the higher quotations have been in lighter volume in this territory than in the East, considerable resistance having been met from larger consumers here.

Boston, Nov. 6.—Demand continues uniformly good for practically all grades of scrap. Eastern Pennsylvania mills have been the best buyers in the past week, ordering well in advance of recent weeks. Pittsburgh mills have taken less tonnage but orders on hand from that center will serve to keep shipments to that point high for some time to come.

New York, Nov. 6.—A reduction at

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	$11.00 to 12.50
Boston, dealers	11.50 to 12.00
Boston No. 2	10.00 to 10.50
Buffalo, No. 1	16.00 to 17.00
Buffalo, No. 2	13.50 to 14.00
Chicago	14.50 to 15.00
Cincinnati, deal	13.50 to 14.00
Cleveland, No. 1	14.50 to 15.00
Cleveland, No. 2	14.00 to 14.50
Detroit, No. 1	13.00 to 13.50
Detroit, No. 2	11.00 to 11.50
Eastern Pa.	15.00 to 16.00
Eastern Pa. No. 2	12.50 to 13.00
N. Y., deal., R. R.	11.50 to 12.00
N. Y., deal., yd	9.00 to 9.50
Pittsburgh, No. 1	17.50 to 18.00
St. Louis, No. 1	13.25 to 13.75
St. Louis, No. 2	12.50 to 13.00
Valleys, No. 1	17.00 to 17.50

COMPRESSED SHEETS

Buffalo	15.00 to 15.50
Chicago	13.00 to 13.50
Cleveland	14.00 to 14.50
Detroit	13.00 to 13.50
Pittsburgh	17.50 to 18.00
Valleys	17.00 to 17.50
E. Pa. new mat	13.00 to 13.50

BUNDLED SHEETS

Buffalo	11.50 to 12.00
Cincinnati, deal	10.50 to 11.00
Cleveland	12.25 to 12.75
Eastern Pa.	11.50
Pittsburgh	14.25 to 14.75
St. Louis	8.50 to 9.00

SHEET CLIPPINGS, LOOSE

Chicago	7.50 to 8.00
Cincinnati	10.00 to 10.50
Detroit	8.50 to 9.00
St. Louis	8.50 to 9.00

STEEL RAILS, SHORT

Birmingham	10.50 to 11.00
Boston	8.25 to 8.75
Buffalo	17.00 to 18.00
Chicago	17.00 to 17.50
Cincinnati, deal	19.00 to 19.50
Detroit	17.00 to 17.50
St. Louis	17.50 to 18.00

STOVE PLATE

Birmingham	13.00 to 13.50
Boston consumers	11.00 to 11.50
Buffalo	14.50 to 15.00
Chicago, net	12.00 to 12.50
Cinn., deal., net	9.50 to 10.00
Cleveland	10.00 to 11.00
Detroit, net	10.00 to 10.50
Eastern Pa.	12.50 to 13.00
N. Y., deal., mill	8.75 to 9.25
Pittsburgh	11.50 to 12.00
St. Louis	13.50 to 14.00

SHOVELING STEEL

Chicago	14.00 to 14.50
Pittsburgh	14.50 to 15.00
St. Louis	13.25 to 13.75

KNUCKLES, COUPLERS SPRINGS

Buffalo	16.00 to 18.00
Chicago	16.25 to 16.75
Eastern Pa.	17.00 to 17.50
Pittsburgh	19.00 to 19.50
St. Louis	14.50 to 15.00

LOW PHOSPHORUS

Buffalo, billet and bloom crops	21.00 to 21.50
Cincinnati, deal	15.00 to 15.50
Eastern Pa.	17.50 to 18.50
Pitts. billet and bloom crops	21.00 to 21.50
Cleve. billet and bloom crops	17.00 to 17.50

FROGS, SWITCHES, GUARDS

Chicago	15.50 to 16.00
St. Louis	14.75 to 15.25

ANGLE BARS—STEEL

Buffalo	14.00 to 14.50
Chicago	16.00 to 16.50
St. Louis	14.00 to 14.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	9.50 to 10.00
Boston, dealers	11.50 to 12.00
Buffalo, No. 1	12.00 to 12.50
Buffalo, No. 2	15.50 to 16.00
Chicago, No. 1	14.25 to 14.85
Chicago, No. 2	14.50 to 15.00
Cinn., No. 2	13.50 to 14.00
Eastern Pa.	15.00 to 16.00
N. Y., No. 1 deal.	11.50 to 12.00
Pittsburgh, No. 1	13.50 to 14.00
Pittsburgh, No. 2	17.50 to 18.00
St. Louis, No. 1	13.00 to 13.50
St. Louis, No. 2	13.25 to 13.75

WROUGHT PIPE

Boston, dealers	10.00 to 10.50
Eastern Pa.	15.00
Buffalo	12.00 to 12.50
New York, deal	10.75 to 11.25

YARD WROUGHT

Boston	8.00 to 8.50
Eastern Pa.	15.00 to 15.50

BUSHELING

Buffalo	14.00 to 15.00
Chicago, No. 1	12.00 to 12.50
Chicago, No. 2	8.50 to 9.00
Cinn., No. 1 deal.	11.00 to 11.50
Cinn., No. 2	7.00 to 7.50
Cleveland, No. 2	11.00 to 11.50
Detroit, No. 1	12.50 to 12.75
Detroit, mixed	7.50 to 8.00
Pittsburgh, No. 1	14.50 to 15.00
St. Louis, No. 1	10.00 to 10.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston	7.00 to 7.50
Buffalo	7.50 to 8.50
Chicago	7.50 to 8.00
Cincinnati, deal	9.25 to 9.75
Cleveland	9.50 to 10.00
Detroit	8.25 to 8.50
Eastern Pa.	11.50 to 12.00
New York, deal	7.50 to 8.00
Pittsburgh	10.75 to 11.25
St. Louis	7.00 to 7.50

MIXED BORINGS, TURNINGS For blast furnace use

Boston, dealers	6.25 to 6.50
Buffalo	11.00 to 11.50
Cincinnati, deal.	9.75 to 10.25
Cleveland	11.00 to 11.50
Detroit	9.00 to 9.25
Eastern Pa.	9.50 to 11.00
New York, deal	6.25 to 6.75
Pittsburgh	12.50 to 13.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	8.00 to 9.00
Boston, chem.	10.00 to 10.25
Boston, dealers	6.25 to 6.50
Buffalo	11.00 to 11.50
Chicago	11.50 to 12.00
Cincinnati, deal	9.75 to 10.25
Cleveland	11.00 to 11.50
Detroit	9.00 to 9.25
Eastern Pa.	11.00 to 11.50
Eastern Pa., chem.	14.50 to 15.00
New York, deal	7.00 to 7.50
Pittsburgh	12.50 to 13.00
St. Louis	9.50 to 10.00
Valleys	12.50 to 13.00

PIPE AND FLUES

Chicago, net	8.50 to 9.00
Cincinnati, deal	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	13.00 to 13.50
Chicago, net	12.50 to 13.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.50 to 13.00
New York, deal	9.25 to 9.75
St. Louis	11.00 to 11.50

FORGE FLASHINGS

Boston, dealers	8.50 to 9.00
Buffalo	12.00 to 12.50
Chicago	9.00 to 9.50
Cleve., over 10 in.	12.25 to 12.75
Detroit	11.50 to 12.00
Pittsburgh (light)	14.00 to 14.50

FORGE SCRAP

Boston, dealers	7.00 to 7.50
Chicago	16.50 to 17.00
Eastern Pa.	12.00 to 13.00

ARCH BARS AND TRANSOMS

Chicago, net	20.50 to 21.00
St. Louis	21.50 to 22.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal	6.75 to 7.00
Buffalo	12.00 to 12.50
Chicago	11.50 to 12.00
Cleveland	12.50 to 13.00
Eastern Pa.	12.00 to 13.00
Pittsburgh	15.00 to 15.50
St. Louis	11.00 to 11.50

STEEL CAR AXLES

Birmingham	16.00 to 16.50
Boston, ship point	16.00 to 16.50
Buffalo	17.75 to 18.25
Chicago	17.90 to 18.50
Cleveland	19.50 to 20.00
Eastern Pa.	22.00
Pittsburgh	20.50 to 21.00
St. Louis	19.00 to 19.50

SHAFTING

Boston, ship point	14.00 to 14.50
Chicago	17.35 to 17.90
Eastern Pa.	20.00 to 21.00
New York, deal	15.00 to 16.00
St. Louis	18.00 to 18.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	12.00 to 12.50
Boston, con.	14.00 to 14.50
Buffalo, iron	13.00 to 13.50
Buffalo, steel	16.50 to 17.50
Chicago, iron	14.00 to 14.50
Chi., rolled steel	17.50 to 18.00
Cincinnati	12.50 to 13.00
Eastern Pa., cast	16.50 to 17.00
Eastern Pa. rolled	17.00 to 17.50
N. Y., iron, deal	12.50 to 13.00
Pittsburgh, iron	16.00 to 16.50
Pittsburgh, steel	19.50 to 20.00
St. Louis, iron	14.00 to 14.25
St. Louis, steel	16.00 to 16.50

No. 1 CAST SCRAP

Birmingham, cup.	14.50 to 15.00
Buffalo	15.50 to 16.00
Boston, textile	15.50 to 16.00
Chicago, mach.	16.80 to 17.35
Chicago, railroad	16.25 to 16.80
Chicago, agri.	15.70 to 16.25
Cincinnati, mach. cupalos, net deal	16.00 to 16.50
Cleveland, cupola	16.50 to 17.00
Detroit, net	13.50 to 14.00
Eastern Pa. cupola	16.50 to 17.50
N. Y., cup., deal	13.00 to 13.50
Pittsburgh, cupola	15.25 to 15.75
San Fran., del	13.50 to 14.00
Seattle	15.50 to 15.75
St. Louis	13.00 to 13.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	12.50 to 13.00
Cleve., breakable	12.50 to 12.75
Detroit, auto., net	19.00 to 19.50
Detroit, breakable	9.00 to 9.50
Eastern Pa.	16.00 to 16.50
New York, deal	12.50 to 13.00
Pitstburgh	13.50 to 14.00

MALLEABLE

Boston, railroad	15.00 to 15.50
Buffalo	15.50 to 16.00
Chicago, agri.	13.00 to 13.50
Chicago, railroad	15.50 to 16.00
Cinn., R. R., deal	14.50 to 15.00
Cinn., agri., deal	13.50 to 14.00
Cleveland, agri.	15.00 to 15.50
Cleveland, rail.	16.00 to 16.50
Detroit, auto	14.50 to 15.00
Pittsburgh, rail	14.00 to 14.25
St. Louis, rail	14.50 to 15.00

Miscellaneous Scrap

RAILS FOR ROLLING 5 feet and over

Birmingham	11.00 to 11.50
Boston, dealers	11.50 to 12.00
Rails scrap, Boston	10.50 to 11.50
Skeleton, Boston	9.00 to 9.50
Buffalo	15.00 to 15.50
Chicago	16.50 to 17.00
Eastern Pa.	14.50 to 15.00
New York	11.50 to 12.00
Pittsburgh district	18.00 to 18.50
St. Louis	15.25 to 15.75

LOCOMOTIVE TIRES

Chicago, No. 1	14.50 to 15.00
Chicago, cut	17.00 to 17.50
St. Louis, No. 1	13.75 to 14.25

LOW PHOS. PUNCHINGS

Chicago	16.00 to 16.50
Pittsburgh	18.50 to 19.00

Bethlehem of $1 a ton on mixed borings and turnings, and also revisions on clean cast borings and turnings are reflected in dealers' buying prices here. A reduction in railroad steel at Bethlehem has resulted in a 50-cent revision, dealers now offering $11.50 to $12, New York. All other grades are steady, with demand rather quiet.

Philadelphia, Nov. 6.—Dealers have reduced buying prices on iron and steel scrap by 50 cents per ton on heavy melting steel, paying $14.50, delivered, Bethlehem, compared with $15. Blast furnace borings and turnings and No. 2 melting steel they are paying $9.50 and $13, respectively, each 50 cents down. The market for scrap is generally easy.

Buffalo, Nov. 6.—Scrap, which showed signs of slight weakness over the week end, was stronger today with dealers fixing $17 as the value of No. 1 heavy melting steel, delivered. Buffalo offers for railroad lists failed to bring material here and shipments were made to Youngstown and Pittsburgh, in preference to Buffalo.

Pittsburgh, Nov. 6.—Little change has occurred recently in the iron and steel scrap market. Heavy melting steel continues at $17.50 to $18, although $19 was paid in the Youngstown district for steel on the special list of the Pennsylvania railroad. A local steelmaker paid $17.75 for the greater portion of a recent purchase although $17.50 was paid for a small part of this order. Other grades are unchanged.

It is understood heavy melting steel on the Pennsylvania list brought $18.82, Youngstown.

Cleveland, Nov. 6.—Recent high levels in scrap brought out so much material that some local mills have held up shipments. This eased up the situation somewhat and dealers are less inclined to pay the high figures. Automobile and railroad lists developed bids slightly lower than last month. Little or no consumer buying is noted locally but purchases in the Mahoning Valley and Pittsburgh districts continued from time to time. Here No. 1 heavy melting steel is $14.50 to $15 and No. 2 is held at 50 cents less instead of the usual dollar differential. Valley prices advance again, heavy melting and compressed sheets going to $17.

Cincinnati, Nov. 6.—Some slight recessions in scrap prices announced last week have been noted this week, heavy melting steel and railroad wrought iron scrap each dropping 25 cents and are quoted at $13.50 to $14 per ton. Mixed borings and turnings and cast iron borings have dropped each 25 cents and are quoted at $9.75 to $10.25. The other advances are holding.

St. Louis, Nov. 6.—Iron and steel scrap has further strengthened its price and while actual exchanges have been small material is wanted. Specific advances were recorded in some dozen items, notably in steel works grades. Offerings of all sorts are smaller and sellers are experiencing trouble getting material to apply on contracts. Likewise, buyers find it harder to get what they want. Round tonnages would be readily taken by mills if it were possible to agree on price.

Birmingham, Ala., Nov. 6.—More iron and steel scrap is moving than a few weeks ago. Heavy melting steel is quoted at $11 to $12.50. Little readjustment of prices on most of the items on the entire list has taken place for some time.

Toronto, Ont., Nov. 6.—Toronto and Montreal dealers report a brisk movement of iron and steel scrap to consumers throughout Ontario and Quebec. Buyers are entering the market with spot orders, but are holding up contracts.

Detroit, Nov. 6.—A slight rise and an equal recession has left the market relatively stationary, with a slight loss on some items. Prices are somewhat weak and spotty but no decided decline is expected.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	5.00
Turnings	6.00
Heavy melting steel	7.50

TORONTO

Steel axles	14.00
Iron axles	16.00
Heavy melting steel	9.50
Turnings	7.00
No. 1 mach. cast (net)	15.00
Malleable (net)	13.00
Stove plate (net)	9.00

Chicago Operations Gain

Chicago, Nov. 6.—Due to the stepping up of operations in several departments the general ingot rate for the Chicago district has advanced several points and now is between 85 and 90 per cent. This present rate is estimated to be 17 per cent above a year ago. The leading interest has 15 of its 27 steel works furnaces in blast. Of the 36 steelworks stacks in the district, 23 are blowing.

To Simplify Welded Chain

Washington, Nov. 6.—A program reducing by one-third the number of sizes and varieties of welded chains now cataloged will be considered at a general conference of manufacturers, distributers and users of chains at the department of commerce, Nov. 15, under auspices of the division of simplified practice of the bureau of standards.

Semifinished

Shipments Heavy and Prices Firm—Some Makers Talking of $1 Advance for First Quarter

DEMAND for semifinished steel continues heavy, with mills working near capacity. Prices of sheet bars, billets and slabs are firm. Recent developments in the market lead some producers to intimate they will ask $1 more a ton when they open their books for first quarter. Although wire rod deliveries lag, valley makers continue to offer tonnages at $42.

SEMIFINISHED STEEL PRICES, PAGE 1200

Pittsburgh, Nov. 6.—Little decline is noted in demand for semifinished steel from sheet and strip producers. Rerolling billets continue fairly active, with most buyers specifying against $33, Pittsburgh, contracts for 4 x 4-inch material. Sheet bars are firm at $33, with wire rods at $42. Several mills continue to accommodate only old customers and are not active in soliciting business, due to lack of excess semifinished capacity.

Milwaukee, Nov. 6.—Appleton Steel Tubes Co., Appleton, Wis., has purchased 20 cars of steel billets through a New York broker. This action grows out of recent curtailment of production through a shortage. The company has its capacity taken for six months.

Youngstown, O., Nov. 6.—Talk of a shortage of wire rods in some sections of northern Ohio has been heard here with considerable interest where the mills are receptive to new wire rod business at $42, Pittsburgh and Cleveland, although advances by the first of the year would not surprise any one. Only routine sales of billets and sheet bars are being made to regular customers, who are being asked to reduce their individual requirements to the minimum owing to makers' needs becoming more pressing from their own mills. This is leading to intimations of an advance of $1 a ton to $34 for sheet bars and $35 for 4 x 4 billets, Pittsburgh or Youngstown, for first quarter.

Open Price Report Ready

Washington, Nov. 6.—The federal trade commission states that the draft of its report on its inquiry into open price associations is practically completed. The report will give the number and nature of open price associations, the names of the associations and the number of their members, a general picture of the activities of representative associations.

The Market Section

Bars

Production Continues Heavy as Consumers Maintain Demand—Prices Show No Weakness

SOFT steel bars continue most active of heavy finished steel lines, although the rate of specification has declined seasonally. But this recession is less than usual. All lines of consumers continue to take large tonnages. A Chicago producer finds the week brought the heaviest sales of three years, with the exception of one week. Prices are firmer.

BAR PRICES, PAGE 1199

Chicago, Nov. 6.—Bar mill operations are above 90 per cent, having been at this rate or at capacity since late July. Demand is from all metal-working lines fabricating bars and all lines using bar mill products. Automotive demand shows little decline from the peak buying of the year. Cold rolled finishers are taking heavy shipments. Farm implement industry and tractor works are at practical capacity and are among the leading users. Sales of bars and all other finished products, including rails, were highest in the 7-day period just closed of any similar period in three years when rail tonnage was included, with the exception of one week, it is reported by a leading producer.

Prices of soft steel bars are steady at 2.10c, Chicago, to miscellaneous small-lot consumers and 2.00c to buyers taking maximum lots per quarter.

Rail steel bar mills are at capacity. The price is firm at 1.95c, Chicago Heights, to the manufacturing trade.

New York, Nov. 6.—A good demand continues to feature the steel bar market. Current demand is nearly as large as during September. Prices are unchanged at 1.90c to 2.00c, base, Pittsburgh, equivalent to 2.24c to 2.34c, base, delivered New York. Iron bar manufacturers have eliminated some of the recent low prices. The usual price now is 1.90c, base, Pittsburgh, equivalent to 2.24c, delivered New York, and anything less now is exceptional. The firmer tone is the direct result of buying support. Demand is better than for a long time.

Philadelphia, Nov. 6.—Demand for soft steel bars is somewhat smaller. The usual price on attractive business is 1.90c, Pittsburgh, with 2.00c being done on small lots.

Pittsburgh, Nov. 6.—Bars continue to lead other heavy rolled products in demand, although current buying shows some decline from the rate of recent weeks. This contraction, however, is less than was expected, following heavy purchasing during the past two months and reflects the slowness with which operations of leading consumers have responded to usual seasonal influences, particularly in the automotive industry. Continued high operations have enabled mills to improve deliveries to a certain extent, backlogs gradually being worked off. Buyers are finding a firmer situation in prices, 1.95c, Pittsburgh, generally being the lowest available quotation to large users on new business, with 2.00c asked in some instances.

Cleveland, Nov. 6.—Sales of most steel barmakers thus far in November are behind the comparable period of October. Deliveries are somewhat easier. Automotive demand is slowing up moderately. Bolt and nutmakers are taking fair tonnages. Outside mills quote 1.95c, Cleveland, while local makers ask 1.90c, Cleveland.

Imports at Philadelphia in the week of Nov. 3, included 6700 tons of iron ore from Algeria, 235 tons of iron ore from Spain and 612 tons of chrome ore from Portuguese Africa.

Protest Scrap Selling

Philadelphia, Nov. 6.—Iron and steel scrap dealers interested in purchasing the Pennsylvania railroad's monthly offerings have requested the railroad to return to its former method of selling. This was to indicate on the monthly list the amount of tonnage of each grade on hand at each point of origin. The new method, that of listing the tonnage of each grade without specifying the point of origin, greatly benefits the consumer who wishes to buy direct, according to the scrap trade.

Buys Newbold Co.

Philadelphia, Nov. 6.—The business of R. S. Newbold & Son Co., manufacturer of rolling mill equipment and plate mill products, Norristown, Pa., has been taken over by L. R. Hilyard, of West Chester, Pa. The name will be continued.

Interstate commerce commission has approved the freight rate on scrap from Rock Hill, S. C., to Oakland City, Ga.

Plates

Car and Tank Requirements Feature Market—Miscellaneous Needs Are Fair—Prices Steady

DEMAND for plates for the oil industry is fairly good. Five thousand tons were awarded for a refinery in San Antonio, and 3915 tons for California tank projects, while 6000 tons are on inquiry for tanks in the Southwest. Recent car awards are expected to develop important plate business in the Chicago market. Most users are obtaining plates to 1.95c, base, Pittsburgh.

PLATE PRICES, PAGE 1199

Chicago, Nov. 6.—The Texas Co. has awarded 5000 tons of heavy plates to Petroleum Iron Works for a refinery at San Antonio, Tex. Other tank plates will be bought by this company for storage work in Texas and an unstated tonnage is on inquiry from the Texas Co. for tank storage work at Lockport, Ill. Inquiry from the Southwest exceeds 6000 tons. Fairly prompt deliveries can be made on heavier plates, but mills rolling lighter sizes are making shipments in two to five weeks. Mills may be crowded in making deliveries, with more than 10,000 freight cars in the market, and the possibility of 40,000 cars being on inquiry or closed before the end of the year, including those from eastern roads. Plate prices are unchanged. The 2.10c, Chicago, quotation applies to miscellaneous buyers of light plates, with 2.00c as the tonnage differential price, except for Southwest and western oil tankage.

Philadelphia, Nov. 6.—Plate buying continues good, although the volume is smaller than recently. Usual minimum prices are 2.05c, base, Coatesville, or 1.90c, base, Pittsburgh, depending on which results in the lowest delivered price, while on small lots the figures are $1 to $2 a ton higher. Prices have been shaded in a few instances. This city opens bids Nov. 7 on 9000 tons of plates for a pipe line, while 13,000 to 14,000 tons is involved in four boats for the Export Steamship Corp., on which bids are to be opened the same day.

Pittsburgh, Nov. 6.—Plate demand lags behind the activity of bars and shapes, although the recent decline in specifications has not been substantial. Mills are attempting to obtain higher prices but uniformity in quoting 1.95c and 2.00c is less marked than in bars and shapes, and large users still are able to obtain 1.90c in certain instances. Barge awards have been quiet, but some builders have sufficient backlog to carry them through the remainder of the year.

Cleveland, Nov. 6.—While plates are in fairly good demand for miscellane-

ous purposes, large tonnages for tanks and boats are absent. A Youngstown, O., interest is negotiating for about 2000 tons for shields for the Detroit river tunel job it recently was awarded. Boiler shops are buying sparingly. Some local plate mills only operate three or four days weekly. The price is 1.95c, base, Pittsburgh. Few orders carry 2.00c. Large users pay 1.90c.

CONTRACTS PLACED

5000 tons, plates for refinery for Texas Co., San Antonio, Tex., to Petroleum Iron Works.
1800 tons, six 118,000-barrel tanks, the Texas Co., Los Angeles, to Western Pipe & Steel Co.
1650 tons, three 170,000-barrel tanks, Wilshire Oil Co., Los Angeles, to Western Pipe & Steel Co.
565 tons, one 80,000 and three 10,000-barrel tanks, Hancock Oil Co., Los Angeles, to Western Pipe & Steel Co.

CONTRACTS PENDING

6000 tons, oil tank work for West Texas.
500 tons, tanks for Standard Oil Co. of New Jersey.
Unstated tonnage, oil storage tank plates for Texas Co., for Lockport, Ill.

Bolts, Nuts, Rivets

Consumption Continues High and Exceeds Previous Month

NUT AND BOLT PRICES, PAGE 1200

Chicago, Nov. 6.—Specifications for bolts, nuts and rivets are at a good rate except from the building trades and railroads. Increases are expected in automotive releases soon. A fair spot buying activity continues in addition to contract business. October orders slightly exceeded September and were ahead of October a year ago by a good margin. Production and orders now are running practically parallel. Operations are about 70 per cent. Machine and carriage bolts are steady at 60 to 70 off, and structural rivets are 3.00c, Chicago, in carload lots.

Pittsburgh, Nov. 6.—October tonnage of bolts, nuts and rivets showed a slight improvement over September. Current specifications are steady although little improvement is noted in buying by railroads. Operations continue at 60 to 65 per cent. Prices are firm at 60 to 70 off for bolts and nuts, and 2.90c, Pittsburgh, for large rivets.

Cleveland, Nov. 6.—Only a few orders are being placed for nuts, bolts and rivets and these mostly are for small amounts. Prices are firm at quoted bases.

Buffalo Rate Tops 90

Buffalo, Nov. 6.—Operations of principal Buffalo steelworks, as indicated by open hearth and finishing mill operations, are ranging between 90 and 95 per cent. Shipments are in line with such production.

Pipe

Prices Stronger, with $1 Advance on Pressure Pipe in Chicago District

PRICES show more strength in the pipe market, with an advance of $1 on 6 to 24-inch cast iron pressure pipe in the Chicago district, and $1.50 to $2 on 6 to 12-inch in the New England market. Several good awards feature the week, Waukegan, Ill., placing 11,320 tons, and Crete, Ill., 3000 tons. The Texas Co. is expected to purchase 75,000 tons for a 600-mile 12-inch line.

PIPE PRICES, PAGE 1200

Chicago, Nov. 6.—An advance of $1 a ton was announced Nov. 5 on 6 to 24-inch cast iron pressure pipe, now $45.20 to $46.20, delivered Chicago, for municipal tonnage orders. The latter price is minimum for small jobs and private and contract work. This range is on a basis of $37 to $38, Birmingham. Some feelers are out for private and contract work for next year. Gas companies have placed good tonnages recently. Crete, Ill., has ordered 3000 tons of 6-inch pipe through a contractor, at above $45.20, delivered.

Boston, Nov. 6.—With a firmer price range for pipe there were few municipal awards or inquiries during the past week. Salem, Mass., opened bids for 100 tons of 6-inch pipe. Prices advanced $1.50 to $2 a ton in the past week. Four-inch pipe is $46.10, delivered, to Boston freight rate points, while 6 to 12-inch pipe is $41.10. On the larger sizes some concessions still are obtainable.

New York, Nov. 6.—New inquiries call for large tonnages of pipe for domestic oil lines, and indications are that some of this business may be closed in the next week or two.

New York, Nov. 6.—Cast pipe demand continues dull, but with a stronger tendency in prices. Sellers generally look for improvement over the next three or four weeks. R. D. Wood & Co. were low on 100 tons of 6-inch pipe for Yonkers, N. Y., at $37.60, delivered.

Pittsburgh, Nov. 6.—Interest in line pipe centers on the current inquiry of the Texas Co. for 600 miles of 12-inch material involving about 75,000 tons. This order is expected to be placed shortly. Demand for merchant pipe continues steady, with a fair tonnage still emanating from the oil fields. Mechanical tubing demand is active.

Cleveland, Nov. 6.—Pipe orders are confined to intermittent carloads for jobbers. The line pipe order for New Mexico has not been placed as yet and may not go in the direction originally thought possible.

Birmingham, Ala., Nov. 6.—Cast iron pressure pipe production is estimated at 75 per cent. Shipments are active. A few new lettings are coming in. Quotations are firm at $36 to $37, base, 6-inch and over sizes and winter steadiness is assured.

Dallas, Tex., Nov. 6.—The Ulrickson advisory board of this city has recommended to the city commission that cast iron pipe be selected for water supply mains regardless of whatever decision the state fire insurance commission may make in regard to removing the 5-cent insurance penalty on steel pipe.

The board of commissioners, Aug. 15, voted to accept the bid of the Uvalde Construction Co. for water mains. According to the advisory board's report, the award left open the selection of pipe and coating. If ⅜-inch pipe and the more desirable bitumastic coating were used, the cost would be more than that of cast iron pipe. The United States Cast Iron Pipe & Foundry Co. was low on cast iron pipe, bettering that of the Herbert Kennedy Co., on French pipe if the cost of laying with leadite were considered.

CONTRACTS PLACED

8300 feet of 6-inch and 3070 feet of 8-inch pipe for Waukegan, Ill., to J. L. Frey, contractor.
3000 tons, 6-inch class B pipe for Crete, Ill., ordered through King Bros., contractor.
144 tons, 4 and 6-inch class B, improvement of E street, Tulare, Calif. General contract to H. E. Conner, Redwood City, Calif.
100 tons, 6-inch cast pipe, Yonkers, N. Y., R. D. Wood & Co., low at $37.60, delivered.

CONTRACTS PENDING

109 tons, 2 to 8-inch class B, Lewiston, Idaho; bids opened.
100 tons, 6-inch pipe, Salem, Mass.; bids closed Nov. 6.

Convention Features Use of Welding Methods

One of the outstanding features of the convention of the International Acetylene association which is to be held at the Congress hotel, Chicago, Nov. 14-16, will be the discussion of the report of the oxyacetylene committee of the association. This report is said to be the most complete and comprehensive survey of the uses of oxyacetylene welding and cutting ever compiled. Technical sessions for the convention include papers by prominent engineers on the following subjects: Use of acetylene in emer-

gencies; use of acetylene in transportation; cutting of structural steel; bronze welding of steel; hard facing metals; nonferrous alloys; mechanical welding and industrial and domestic piping.

Tin Plate

Present Price Expected To Be Reaffirmed for First Half

TIN PLATE PRICES, PAGE 1199

Pittsburgh, Nov. 6.—Tin plate shows little change in demand or production. Contracting for first half awaits the naming of the price for that period within a few weeks. The impression prevails that the current figure of $5.25 per base box, Pittsburgh, will be continued, with a cash discount of one-half of 1 per cent. Although operations for the district are around 70 per cent, this is substantially ahead of the rate a year ago. Most consumers, except canmakers who normally are out of the market at this season, are buying in fair volume.

Iron Ore

Needs for Larger Supply Being Met By Shippers

IRON ORE PRICES, PAGE 1200

Cleveland, Nov. 6.—Pig iron producers associated with iron ore interests expect no difficulty in obtaining all the ore they will require. Some of the smaller merchant furnaces, buying in the open market, may be discouraged in blowing in additional stacks. However, two valley merchant furnace interests were able to obtain an aggregate of 200,000 tons in the open market in the past week. Most of the iron ore boats have been scheduled for the remainder of the year, but some owners have given up expectations of grain tonnage, feeling their first obligations due to iron and steel producers. In addition to the sales referred to several others are noted, ranging from 10,000 to 15,000 tons. Prices are firm. No premiums are being paid for ore. The most producers can see in the present situation is the favorable outlook for better prices next season.

Named to Committees

Ezra Van Horn of Cleveland, general manager of the Clarkson Coal Mining Co., has been appointed state chairman for Ohio on the committee on mechanized mining of the American Mining congress, Washington. R. L. Ireland Jr., also of Cleveland, general manager of the M. A. Hanna bituminous coal mines, has received the appointment of chairman of the committee on transportation under the mechanization plan which the mining congress has inaugurated.

Sheets

New Buying Is Less Impressive, While Operations and Shipments Continue at High Rate

THE volume of new sheet business has relaxed, thought shipments on contracts continue heavy. Demand from the automobile industry is fairly well sustained. While operations are close to capacity some manufacturers of specialties are unable to get deliveries sufficiently prompt to take advantage of new business offered to them.

SHEET PRICES, PAGE 1199

Pittsburgh, Nov. 6.—Despite a slight contraction in steel sheet buying, incoming business is unusually well maintained in view of the great activity during October and September. Operations are holding close to capacity, but deliveries have not been materially improved. Mills still require three to four weeks for black sheets and four to five weeks for galvanized and full finished. Sheet demand from the automotive industry has slackened in some directions although several companies working on new models have increased requirements. Total tonnage going to the automotive field, however, is smaller than a month ago in line with seasonal decline in output. Agricultural implement manufacturers continue to buy actively. Prices are firm at 2.75c, base, Pittsburgh, for sheet mill black, 3.50c for galvanized, 2.00c for blue annealed, and 4.00c for autobody. Operations of the leading producer here continue nearly full.

New York, Nov. 6.—Vitality of sheet demand continues unimpaired. Current bookings are on a par with September volume. More business in blue annealed is bringing 2.10c, base, Pittsburgh. The regular price is 2.00c, but on light gages 2.10c is done frequently. In addition, the $2 extra for widths over 45 inches generally is obtained. Small sales of galvanized sheets are noted at 3.60c, base, Pittsburgh, but the usual price continues 3.50c. On black sheets 2.75c, base, Pittsburgh, is fairly firm.

Philadelphia, Nov. 6.—Sheet demand is well sustained. Some companies booked their heaviest tonnages of the year in October. Several tonnages of black sheets were placed by large consumers in the past week at 2.75c, base, Pittsburgh, indicating weakness in that grade is past. Galvanized sheets continue firm at 3.50c. Blue annealed are firm at 2.00c, while small lots in numerous instances, particularly when light gages are wanted, are bringing 2.10c, base, plus $2 extra for widths over 45 inches.

Youngstown, O., Nov. 6.—New sheet business falls below production. Pressure for deliveries of autobody and common black sheets is strong. By Dec. 1 another low-price popular car builder will be swinging into full production, and shortly may begin buying.

While some of the steel barrelmakers in the Cleveland district have eased off in demand for sheets, other lines of sheet consumption, such as the steel furniture and metal lath trades continue to absorb large tonnages. Black sheets are firm at 2.75c, base, Pittsburgh; autobody at 4.00c; blue annealed at 2.00c, and galvanized at 3.60c.

Cleveland, Nov. 6.—Practically all grades of sheets are in demand. Specifications are not up to the September rate but are in a parity with the early part of October. Some users have experienced a sudden increase in their business but are handicapped because they cannot get sheet deliveries. Electric refrigerator manufacturers are calling for larger tonnages. Prices are firmer. Books will probably be opened for first quarter Nov. 15.

Chicago, Nov. 6.—Sales of steel sheets are well diversified. Buying is good in most territories, except in parts of the South and Southwest where competition is keen. Farm implement and tractor works demand is good. Belief still is expressed by producers that advanced prices may be put in effect before books are opened for first quarter. Chicago delivered quotations are 2.90c for No. 24 black, 3.65c for No. 24 galvanized, and 2.15c for No. 10 blue annealed. However, blue annealed sheets are expected to be advanced $2 a ton and black and galvanized $3 on Nov. 8.

St. Louis, Nov. 6.—Demand for sheets continues active and producers are behind in deliveries on certain grades. The leading local producer is operating all units full time. Prices are steady.

Wrought Iron Co. Active

Philadelphia, Nov. 6.—The Wrought Iron Co. of America, Commercial Trust building, commenced doing business Nov. 1 as successor to the Lebanon Iron Co. and Scranton Bolt & Nut Co. with plants at Lebanon and Scranton, Pa. Charles Hart is president, Harvey M. Clymer vice president, Frank B. Smith secretary and Howard Longstreth treasurer.

Rome Iron Mills Resumes

The puddling department of the Rome Iron Mills Inc., Rome, N. Y., is resuming Nov. 7 due to the revival of railroad buying, according to William E. Oliver, general superintendent.

Structural Shapes

Award of 17,000-Ton Chrysler Building in New York Features Week—Bids Soon To Be Taken on 28-000-Ton Bridge

OVERSHADOWING the fabricated structural market of the week was the awarding of 17,000 tons for the 67-story Chrysler building in New York, the contract going to American Bridge Co. New York also furnishes the largest active pending project, bids to be taken Nov. 19 on 28,000 tons of structurals for the Kill Van Kull bridge, from New Jersey to Staten Island. Bethlehem Steel Co. is reported to have booked between 11,000 and 12,000 tons of structural material for the Columbia river bridge at Longview, Wash. Youngstown Sheet & Tube Co. mill expansion at Indiana Harbor, Ind., required a total of 8000 tons of structural material. Plain material prices are firm commensurate with heavy demand. Fabricated prices are firmer.

STRUCTURAL SHAPE PRICES, PAGE 1199

New York, Oct. 6.—Featuring structural buying is the placing of 17,000 tons for the Chrysler office building at Forty-second street and Lexington avenue. Buying otherwise is comprised mostly of moderate sized tonnages. Bids were postponed to Nov. 19 on approximately 28,000 tons for a bridge over the Kill Van Kull, between New Jersey and Staten island. Prices on both plain shapes and fabricated material are strong.

Boston, Nov. 6.—While little developed in structural contracts in the past week fabricators believe that conditions have gone through their worst and a better condition will develop. A number of small jobs were placed in the past week. The United Shoe Machinery building will require 5000 tons.

Philadelphia, Nov. 6.—Demand for structural shapes is somewhat better. The market generally is firm but shading has not entirely disappeared.

Pittsburgh, Nov. 6.—Specifications for plain structural material have declined from the volume a month ago, but not to a marked degree. Awards of fabricated steel are less active, most of the recent business consisting of small lots. Inquiry also is fairly quiet. Fabricators are beginning to work off backlogs. Consumers are finding in only a few instances the 1.90c, Pittsburgh, price available on plain material, mills holding more uniformly to 1.95c and 2.00c on new business.

Cleveland, Nov. 6.—Specifications for structural material maintain a good pace but job lettings are few. Inquiries pending represent good sized tonnages such as 3100 tons for Lakeside hospital, Cleveland, and 7500 tons for the Akron, O., hangar. Architects have much work in progress but owners are slow about releasing it for bids. Plain material is firm at 1.90c to 1.95c, Pittsburgh.

Chicago, Nov. 6.—Bids will be asked in about two weeks for 2000 tons of structural steel for the naval reserve armory near the central business district, Chicago. Railroad buying of light structurals and steel for bridge work is in heavy volume. Youngstown Sheet & Tube Co. has awarded 8000 tons for plant extensions at Indiana Harbor. Car repair needs have taken considerable material. Heavier structural mills have gaps in their schedules, but mills rolling lighter material are close to capacity. This makes structural mill operations for the district close to 80 per cent. Mill deliveries are deferred as much as five weeks in some sizes, the average being two to five weeks. The ordering of prepared mill sections for building work offers competition in plain structural sales. Prices are steady at 2.10c, Chicago, for smaller buyers of light shapes, with 2.00c, Chicago, prevailing for tonnage buyers of heavy plain material.

Awards Compared

	Tons
Awards this week	61,326
Awards last week	48,038
Awards two weeks ago	41,621
Awards this week in 1927	32,664
Average weekly awards, Oct.	39,995
Average weekly awards, 1928	42,155
Total awards to date, 1927	1,626,629
Total awards to date, 1928	1,709,172

CONTRACTS PLACED

17,000 tons, 67-story Chrysler building at Lexington avenue and Forty-second street, New York, to American Bridge Co., through Fred T. Ley & Co. Inc., general contractor.

11,000 to 12,000 tons, bridge over Columbia river, Longview, Wash., to Bethlehem Steel Co.

8232 tons, involved in the following awards:
- Column cores, building in Varick street, New York;
- Column cores, building, Spring street and Sixth avenue, New York, and;
- Building, Forty-eighth street and Third avenue, New York, all to Levering & Garrigues Co.
- Sixteen-story building, 420 Lexington avenue, New York, to Paterson Bridge Co.
- Midtown hospital, 309 East Forty-ninth street, New York; and
- Building, 152 University avenue, to A. E. Norton Inc.
- Apartment, Eighty-sixth street and East End avenue, New York, to Lehigh Structural Steel Co.

5000 tons, merchant bar mill for Youngstown Sheet & Tube Co., Indiana Harbor, Ind., to Hansell-Elcock Co., instead of 3935 tons as announced last week.

3500 tons, Sterick building, for Wyatt C. Hedrick, architect, through Bellows Maclay Construction Co., Dallas, Tex., to Virginia Bridge & Iron Co.

2800 tons, plant addition for Atwater-Kent Mfg. Co., Philadelphia, to Shoemaker Bridge Co.

2500 tons, open-hearth building for Youngstown Sheet & Tube Co., Indiana Harbor, Ind., to McClintic-Marshall Co., instead of 2800 tons as announced last week.

2055 tons, building, Atwater-Kent Mfg. Co., Philadelphia, to Truscon Steel Co.

2000 tons, power plant, Holland, N. J., to Belmont Iron Works.

1860 tons, building, Curtiss Aeroplane Co., Buffalo, to Lackawanna Steel Construction Co., through James T. Stewart Co., New York, general contractor.

1000 tons, hotel, 15 Hill street, Newark, N. J., to Hinkle Steel Construction Co.

1000 tons, mill building, Pittsburgh, to Pittsburgh Bridge & Iron Works.

900 tons, Staley building, Decatur, Ill., to Mississippi Valley Structural Steel Co.

876 tons, apartment East End avenue and Eighty-sixth street, New York, to Lehigh Structural Steel Co.

800 tons, New York Central railroad bridge, Rensselaer, N. Y., to Phoenix Bridge Co.

650 tons, plant building for Nichols & Shepard Co., Battle Creek, Mich., to Indiana Bridge Co.

600 tons, building at 307 Fifth avenue, New York, placed recently, just announced to Hinkle Steel Construction Co.

600 tons, bridgework for Southern Pacific railroad, to American Bridge Co.

600 tons, loft for Yonkers Electric Light & Power Co., Yonkers, N. Y., to Star Iron Works.

595 tons, Cunningham store, Detroit, to Whitehead & Kales.

500 tons, hospital, 227-35 East Nineteenth street, New York, placed recently, just announced to Hinkle Steel Construction Co.

400 tons, North street bridge, New Castle, Pa., to Independent Bridge Co.

400 tons, storage and mill building for Youngstown Sheet & Tube Co., Indiana Harbor, Ind., to Worden-Allen Co.

330 tons, Madison grade school, Pittsburgh, to J. E. Moss Iron Works.

300 tons, school at Ft. Washington avenue, New York, placed recently, just announced to Hinkle Steel Construction Co.

250 tons, building for Brooklyn Ash Removal Co., Brooklyn, N. Y., to Shoemaker Bridge Co.

225 tons, building for Pressed Steel Car Co., McKees Rocks, Pa., to Pittsburgh Bridge & Iron Works.

210 tons, incinerator, Newton Creek, N. Y., to Shoemaker Bridge Co.

175 tons, telephone building, San Bernardino, Calif., to Union Iron Works.

150 tons, building, White Motor Co., Philadelphia, to Robinson Iron & Steel Co.

123 tons, Cutter store building, Charlotte, N. C., to Southern Engineering Co.

120 tons, building, Fisher Body Co., Detroit, to Mahon Structural Steel Co.

110 tons, overhead crossing at Council Bluffs, Iowa, for Union Pacific railway, to Paxton & Vierling Iron Works.

100 tons, building, Philadelphia Electric Co., Norristown, Pa., to Belmont Iron Works.

Unstated tonnage, building, 103-13 Second avenue, New York, to Dreier Iron Works.

Unstated tonnage, school, Elmsford, N. Y., through Delta Construction Co., general contractor, to unnamed fabricator.

CONTRACTS PENDING

28,000 tons, bridge over the Kill Van Kull, between New Jersey and Staten Island, for the port authority, New York; bids post-

poned to Nov. 19.

14,000 tons, board of trade building, Chicago; Holabird & Root, architects.

5000 tons, office building for United Shoe Machinery Co., Boston. Parker, Thomas & Rice, architects.

2500 tons, highway bridge, Liberty Bend, Mo.

2000 tons, naval reserve armory, Chicago.

1200 tons, bridgework for Northern Pacific railroad.

667 tons, bridge over Missouri river near Wolf Point, Mont.; Missouri River Valley Bridge & Iron Co. low bidder.

500 tons, Elks club, White Plains, N. Y.

300 tons, dormitory, Duke university, Durham, N. C.

300 tons, two apartments, Broadway, San Francisco; bids being received.

170 tons, bridge over Southern Pacific tracks near Benham, Calif.; bids Nov. 21.

Unstated tonnage, United States post office, Newton, Iowa. Bids close Nov. 22.

Unstated tonnage, United States post office, Conway, Ark. Bids closed Oct. 17.

Unstated tonnage, United States post office, extension, Elmira, N. Y. Bids close Nov. 27.

Unstated tonnage, United States post office extension, Anderson, Ind. Bids closed Oct. 26.

Unstated tonnage, United States post office, Lancaster, Pa. Bids closed Oct. 23.

Unstated tonnage, 50-story building, Shearer Estate, Detroit. To come along later.

Unstated tonnage, bridge for Pere Marquette railroad, Port Huron, Mich. In abeyance.

Unstated tonnage, Mercy hospital, Monroe, Mich. D. A. Bohlen & Son, Indianapolis, architect.

Unstated tonnage, ice plant addition, 219th and Ninth avenue, New York.

Unstated tonnage, addition to Loft candy factory, Long Island City, N. Y.; William Higginson, architect.

Unstated tonnage, proposed city-county building, Detroit; $20,000,000 bond issue to come before voters Nov. 6.

Unstated tonnage, plant No. 4, Olds Motor Works, Lansing, Mich., 160 x 460 feet. Work to start Jan. 1.

Unstated tonnage, plant improvements, Michigan Steel Tube Products Co., Buffalo street, Detroit. Bids asked.

Unstated tonnage, 50-story building, to replace present Ford building, to be built by Michigan Alkali Co., Detroit.

Unstated tonnage, Essex county courthouse, Newark, N. J. Gilbert & Betelle, Newark, N. J., architects.

Unstated tonnage, Brooklyn Gardens apartment on Fourth avenue, between Twenty-third and Twenty-fourth streets, Brooklyn, N. Y.; Andrew J. Thomas, architect.

Unstated tonnage, 2-story building 150 x 800 feet, Jos. N. Smith Co., 5914 Federal avenue, Detroit. General contract to the Wood Co., Detroit.

Unstated tonnage, 10-story banking and office building, Peoples State Bank for Savings, First and Clay streets, Muskegon, Mich. Bids asked.

Unstated tonnage, building, Chrysler Corp., between Ford City and Walkerville, Ont. Hutton & Soutter, Hamilton, Ont., selected as architects.

Unstated tonnage, two bridges, Detroit River-Canadian Bridge Co., Detroit. Permission granted by war department for two 600-foot spans, 152-foot clearance, one from Grosse Ile to Stony Island and one from Stony Island to Amherstburg, Ont., 16 miles below Detroit.

Unstated tonnage, various structures, Bell Telephone Co., of Michigan, Detroit, including Empire exchange building; 3-story addition at Bethune and John R streets; and 5-story building at Detroit. Bids closed Oct. 26. Exchange buildings at Grand Rapids, Port Huron, Holland, Mich., and other points up for early attention.

New Hot Strip Mill In

Pittsburgh, Nov. 6.—Superior Steel Corp. has started its new hot mill at its Carnegie, Pa., plant for rolling strips ⅜-inch to 3-inch of 22-gage and heavier.

Dr. Sorby, of England, was the one who first discovered the true composite nature of the pearly constituent of steel, consisting of an aggregate of parallel plates.

Concrete Bars

Activity Continuing Above Seasonal Expectations — Prices Show No Change

A GOOD flow of inquiries and awards marks a heavier movement of concrete bars than usual at this season. Although large projects are few, the bulk of awards is keeping the total placed above last year. October building in Chicago increased over September. Weakness in prices is more marked on attractive business in the Chicago district.

REINFORCING BAR PRICES, PAGE 1199

Chicago, Nov. 6.—Billet reinforcing bar prices show marked weakness when attractive building work is offered. Some fabricators have refrained from submitting bids because of prices that have been made below 2.15c, Chicago. Rail steel bars are fairly firm at 2.00c to 2.60c. October building permits in Chicago were slightly below a year ago in number, but 11.02 per cent ahead in value. October permits showed an increase of 237 over September and more than $8,000,000 in value. Many small building jobs are being closed, including several school additions.

Pittsburgh, Nov. 6.—Total tonnage of concrete bars booked by mills in October was seasonally high. Activity in awards recently has been restricted, practically all jobs consisting of small tonnages. Total business, however, is fairly large. Prices are firm at 2.25c, Pittsburgh, for cut lengths and 2.00c for mill lengths of billet steel bars.

Buffalo, Nov. 6.—A 300-ton inquiry for a new educational building is the largest for reinforcing bars reported this week. Small-lot business is good and prices steady. Nothing of large size has been placed with sellers here.

Awards Compared

	Tons
Awards this week	**3,346**
Awards last week	**8,729**
Awards two weeks ago	**7,185**
Awards this week in 1927	**5,329**
Average weekly awards, Oct.	**6,740**
Average weekly awards, 1928	**7,146**
Total awards to date, 1927	**252,499**
Total awards, to date, 1928	**300,147**

CONTRACTS PLACED

800 tons, addition, Atwater-Kent Mfg. Co., Philadelphia, to Truscon Steel Co.

400 tons, Standard Oil Co. building, South Bend, Ind., and apartment, Chicago, to Concrete Steel Co.

375 tons, apartment, Chicago, to Kalman Steel Co.

350 tons, highway work in Ventura county, Calif. General contract to S. Pearson, Santa Monica. Steel to unknown company.

350 tons, apartment, South Shore drive, Chicago, to Joseph T. Ryerson & Sons Inc.

300 tons, apartment hotel, Evanston, Ill., to Calumet Steel Co.

225 tons, apartment, 2912 Commonwealth avenue, Chicago, to Concrete Engineering Co.

200 tons, addition, Union Trust Co. building, 66 Broadway, New York, to Carroll-McCreery & Co. Inc.

140 tons, addition to Cleveland Clinic, Cleveland, through Lundoff-Bicknell Co., general contractor, to Bourne-Fuller Co.

106 tons, sewage plant, Stone Harbor, N. J., to Concrete Steel Co.

100 tons, garage on Nineteenth street, St. Louis, to Missouri Rolling Mill Co.

CONTRACTS PENDING

700 tons, additional unit for Olson Rug Co. plant at Chicago.

300 tons, Teachers College building, Buffalo; bids in.

188 tons, bridge over Southern Pacific tracks near Benham, Calif.; bids Nov. 21.

129 tons, bridge in Orange county, Calif.; bids opened.

114 tons, bridge over Missouri river near Wolf Point, Mont.; Missouri River Valley Bridge & Iron Co. low bidder.

Unstated tonnage, Illinois hotel, Illinois and Rush streets, Chicago; William Bernhard & Co., architects.

Unstated tonnage for 29 miles Michigan state road work. Of this, 8 miles in Emmet county, went to Goldberg Construction Co., Mackinaw City, Mich.; 7 miles on M-43 road, southwest of Hastings, Mich., to C. J. McCavey, Royal Oak, Mich.; 6 miles north on U. S. 27 road, six miles from Coldwater, Mich., to Mollering Construction Co., Coldwater; and 5½ miles south from Marshall, Mich., on U. S. 27 to Grace Construction Co., Marshall.

Bessemer Output Gains in Valley

Youngstown, O., Nov. 6.—Steel mill operating rates remain practically unchanged this week at 90 per cent for independents and 80 per cent for Steel corporation units. The independents lost three open-hearth units for repairs, melting in 46 units this week out of a total of 51 units, but bessemer operations have broadened accordingly.

Steel bar operations of independents are at 60 per cent, but Carnegie Steel Co. is at 80. Independent tin mills are at capacity, but Steel corporation mills are at 75 per cent. Strip mills are operating at capacity, but pipe mill operation is slightly lower due to mechanical difficulties with 13 units active out of a total of 20 welded and seamless units. Independents have started 110 sheet units out of a total of 127, but may add three more which then would make sheet operations equal to last week.

The Russian soviet government

says that iron ore production in Russia, at 5,977,000 metric tons in the year ended Sept. 30, gained 24 per cent over the preceding year.

Seek Separate Action on Cast Pipe Rates

Washington, Nov. 6.—Freight rates on cast iron pipe should be adjusted on the basis of separate cases now before the interstate commerce commission and should not be included in the general rate investigation, docket No. 17,000, in which a mileage scale has been recommended, declare representatives of the United States Cast Iron Pipe & Foundry Co., the American Cast Iron Pipe Co., the McWane Cast Iron Pipe Co., the Alabama Iron & Steel Shippers' conference, the Central Foundry Co., and James B. Clow & Sons. The formal exceptions of these interests have been filed with the commission.

Stoker Sales Steady

Washington, Nov. 30.—Sales of stokers in September totaled 161, a decline of one from August, the report shows. Following is the department of commerce comparison:

	Stokers sold	Fire tube boilers	Water tube boilers
1926 total	1,361	289	1,072
1927			
September	104	48	56
Total (9 mos.)	1,129	387	742
October	95	37	58
November	67	26	41
December	83	29	54
Total (year)	1,374	479	895
1928			
January	75	20	55
February	85	26	59
March	123	31	92
April	88	21	67
May	130	43	87
June	*162	*78	84
*July	186	67	119
August	162	57	105
September	161	68	93
Total (9 mos.)	1,172	411	661

Babbitt Consumption Up

Washington, Nov. 6.—Total apparent consumption of babbitt metal in September was at the highest mark since August, 1927, according to the department of commerce. Monthly comparisons follow:

	Total apparent consumption (Figures given in	Sold by manufacturers pounds)	Consumption by producers
1927			
September	4,792,367	4,116,525	675,842
Tot. (9 mos.)	46,024,504	36,654,022	9,370,482
October	5,115,598	3,860,239	1,255,359
November	4,505,954	3,320,205	1,185,749
December	4,465,787	3,169,493	1,296,294
Total, 1927	60,111,843	47,003,959	13,107,884
1928			
January	4,928,517	4,034,352	894,165
February	4,470,368	3,443,694	1,026,674
March	4,927,634	3,903,071	1,024,563
April	4,842,656	3,724,691	1,117,965
May	4,606,899	3,578,422	1,028,477
June	4,731,023	3,625,347	1,105,676
July	4,692,825	*3,816,707	*938,955
August	4,755,662	3,843,680	911,982
September	5,308,403	4,309,004	999,399
Total (9 mos.)	43,263,987	34,255,148	9,008,839

Rails, Cars

Heavy Rail Lettings Speed Activity in Steel Needs—Larger Car Programs in Offing

STEEL rail contracting is bringing renewed life to the railroad market. New York Central's allocation of 191,550 tons of rails, and orders for 100,000 tons from western roads featured the week. At Chicago about 125,000 to 150,000 tons of rails is on inquiry. Wabash is in the market for 2000 box cars and St. Paul expects to inquire for 4000 miscellaneous.

RAILROAD TRACK PRICES, PAGE 1200

Chicago, Nov. 6.—Railroad buying of steel is extending backlogs on most steel products, including bars, bridge steel and light and heavy plates, and indications are that cars to be purchased in the next 60 days will develop a heavy demand for bars, plates and structurals. Rail purchases are heavy.

New York Central released about 85,000 tons of rails in this territory. In addition three western roads purchased 100,000 tons during the week. Chicago, Burlington & Quincy is taking 30,000 tons, and Chicago & North Western and Chicago, Milwaukee, St. Paul & Pacific are announcing their tonnages later this week. The latter two roads will order approximately the same tonnage as a year ago. At that time Chicago & North Western ordered 48,800 tons, and the St. Paul 50,000 tons. St. Louis-San Francisco is expected to buy about 35,000 tons of rails soon. About 125,000 to 150,000 tons of rails are on inquiry.

About 3500 tons of track fastenings were ordered out for rush shipment, and about 12,000 to 15,000 tons were purchased in connection with recent rail orders for 1929 delivery, making the total track accessory sales close to 18,000 tons for the week.

Car orders now being prepared for release are from the Santa Fe, Illinois Central, and St. Paul. The last road is expected to inquire for about 4000 miscellaneous freight and passenger cars. The Wabash is in the market for 2000 box cars, and the Chicago & North Western is out for 725 freight cars. The Missouri Pacific inquiry for 3000 cars is expected momentarily. The Rock Island order against its inquiry for 2750 freight cars will be placed sometime next week. Santa Fe is inquiring for 50 special type sleeping cars.

New York, Nov. 6.—The New York Central lines have placed orders for 191,550 tons of steel rails, of which 70 per cent is for immediate delivery. The allotments have been made as follows: Bethlehem Steel Co., 82,030 tons; Illinois Steel Co., 69,140 tons; Inland Steel Co., 15,380 tons; Carnegie Steel Co., 13,310 tons; Dominion Iron & Steel Co., 11,690 tons.

With car inquiries increasingly numerous, builders of this equipment are looking forward to substantial improvement during November and December. A leading inquiry is that of the Wabash for 2000 box cars. Locomotive buying continues slack. Approximate total of freight car awards in October was 2335.

Pittsburgh, Nov. 6.—Track accessory demand shows little improvement although total October tonnage was slightly ahead of September. Coal mines are taking more light rails and accessories.

CAR ORDERS PLACED

Canadian Pacific, 15 passenger underframes and 250 refrigerator cars, reported awarded National Steel Car Co.

Central of New Jersey, rebuilding of 499 ice cars to own shops.

Chicago, Burlington & Quincy is rebuilding an unstated number of box cars at its Havelock, Nebr., shops.

Chicago, South Shore & South Bend, ten steel passenger cars, to Standard Steel Car Co.

Delaware, Lackawanna & Western, two dining cars, to Pullman Car & Mfg. Corp.

Rapid City, Black Hills & Western, one gasoline rail motor car, to Edwards Railway Motor Car Co.

St. Louis-San Francisco, underframes and steel parts for rebuilding 10 box cars, to American Car & Foundry Co.

LOCOMOTIVES PLACED

Rapid City, Black Hills & Western, 70-ton locomotive, to Heisler Locomotive Works.

CAR ORDERS PENDING

Atchison, Topeka & Santa Fe, 50 special type combination sleepers.

Chicago & North Western, 725 freight cars, bids asked; specifications call for 400 low-side 70-ton composite gondolas, 300 50-ton flat cars and 25 70-ton hopper cars.

New York, New Haven & Hartford, 20 underframes for wooden baggage cars.

Chicago, Rock Island & Pacific, five steel baggage cars, in addition to 15 suburban coaches recently noted as pending.

Denver & Rio Grande Western, two baggage and mail cars and three observation cars.

Lehigh & New England, repairs on 200 steel gondolas.

Wabash, 2000 box cars.

Implement Makers Active

Citing figures to show that the farm equipment industry is in the best condition since the world war, F. A. Lyman, director of the research department of the National Association of Farm Equipment Manufacturers, Chicago, points out that tractor and combine thresher sales this year have been the best on record. Figures for combines show that 27,500 were produced this year, against 18,600 last year and 12,000 in 1926.

Strip

Specifications Continue Rate of October—New Base Prices Are Being Held in Most Cases

ACTIVITY in hot-rolled strip continues at a high rate, in many instances the best of the year. A high rate of operation and production is accomplishing little in reducing backlogs. Consumers have little objection to the new schedule of prices and some tonnage has been booked at the higher levels. Most present shipments are against contracts at the old level.

STRIP PRICES, PAGE 1200

Cleveland, Nov. 6.—Three to five weeks' deliveries are typical in cold strips. Hot strip deliveries are slightly easier. Demand is well sustained but with less vigor than in September. Cold strip quotations usually are 2.85c, Pittsburgh. Some buyers have added to their November tonnage at 2.75c. Some unattractive orders from noncontracting buyers carry 2.95c. Makers quoting 1.90c to 2.00c, Pittsburgh, on hot strips on new business have added tonnage to their contract customers. November-December allotments at 1.80c to 1.90c the two bases, depending on widths. The higher bases evidently are the planned quotations for first quarter although no books have been opened for that period. Even though one-piece fender makers now are buying sheets, the automotive demand for cold strips holds up well. Cooperage tonnage for narrow hot strips is surprisingly high.

Philadelphia, Nov. 6.—Sellers of hot strip are receiving heavy specifications, most being against contracts placed before present prices took effect.

Pittsburgh, Nov. 6.—Hot-rolled strip steel demand holds to the active October rate which for some mills was the heaviest this year. Despite active operations, incoming business is only slightly behind shipments. Little objection is heard to the new base prices and card of extras. Some spot business has been received at new quotations of 1.90c for 6 1/16 inch and larger, and 2.00c for sizes less than 6-inch. Cold rolled strip steel is 2.85c and 2.95c for spot orders, with 2.75c applied against most contracts.

Cold Finished Steel

Specifications Seasonally High but Below Last Month

COLD FINISHED PRICES, PAGE 1199

Pittsburgh, Nov. 6.—Specifications for cold finished steel bars are less active than a month ago but hold to a high seasonal level. Decrease in demand reflects tapering in automobile production although this decline is noted only for some companies. Others are maintaining previous operating rates or have increased output. Prices are firm at 2.20c, Pittsburgh, for drawn or rolled bars and 2.55c to 3.00c, Pittsburgh, for turned and ground shafting.

Cleveland, Nov. 6.—While demand for cold finished bars has slackened in some directions it has increased in others. The aggregate keeps up to the October rate, which receded slightly from September. Deliveries are somewhat deferred. Prices are entirely firm at 2.25c, Cleveland. Automotive industry's orders are still a feature at a time when in former years they dwindled.

New Temperature Scale Outlined by Bureau

Adoption of an international temperature scale has been considered by the national physical laboratory of Great Britain, the physikalisch-technische Reichsanstalt of Germany and the bureau of standards of the United States. The results of the investigations of this new scale by these three groups are contained in research paper 22 of the bureau of standards, Washington. The paper is a reprint from the Journal of Research of the bureau of standards and was prepared by George K. Burgess, director of the bureau. The discussion contains a definition of the international temperature scale and formulas devised for determining certain fixed points on the scale.

The efficiency of dolomite in purifying the iron in the blast furnace first was pointed out by Louis Gruner of Paris.

Wire

Lessened Specifications Seasonal but Decline Is Small—Nails Continue to Trail Wire

WHILE users of wire are specifying at a lower rate than in recent weeks the decline is less than usual at this season. Jobber demand is good except in the west. Prices remain steady. Manufacturers' wire continues active, as in the past. Prices are steady and some talk is heard of a higher range for next quarter. Some makers are able to catch up on orders to some extent.

WIRE PRICES, PAGE 1200

Pittsburgh, Nov. 6.—Wire specifications are less active although sellers generally consider current business satisfactory since the decline is less than normal for this period. Aggregate automotive buying is smaller but some interests continue heavy specifiers. Nail demand is fairly steady but less active than wire. Prices are firm at 2.40c, Pittsburgh, for plain wire and $2.55 for wire nails. Some talk is heard of higher prices for next quarter.

Worcester, Mass., Nov. 6.—Buying of steel wire and wire products continues steady at firm prices, 2.55c, Worcester, base. Last quarter specifications are increasing slowly. Specialty materials are in good demand and plain bright wire is steady. Production keeps pace with current business and stocks are not generally being accumulated. Mill schedules average 60 to 65 per cent. Export trade is steady.

New York, Nov. 6.—While steel wire demand continues fair, demand for nails is slow. Prices are firm. On wire the base is 2.40c, Pittsburgh, and on nails $2.55, base, Pittsburgh, to jobbers and $2.65 to dealers.

Chicago, Nov. 6.—Wire mills are holding operations at slightly above 70 per cent. Demand for manufacturers' wire is good and steady tonnage is being placed on books. Jobber demand is moderately active for nails and plain wire except in the South and Southwest, where sales are dragging. Quotations are reported steady on the basis of 2.45c, Chicago, or western mills, for bright plain wire, with $2.60 being quoted now for wire nails.

Buffalo, Nov. 6.—With welded mesh production reduced sharply because of less demand, wiremakers here have been able to catch up with specifications for shipment of other materials for the first time in several months. Prices of wire are being well maintained by all sellers.

Cleveland, Nov. 6.—Wire specifications are fair. The base is firm at 2.40c, Pittsburgh-Cleveland. Nail producers maintaining $2.55 as their firm market quotation for several weeks have not enjoyed much tonnage because some sellers protected their customers at lower figures and in some cases these protections do not run out until the end of the year.

Nonferrous Metals

Copper Continues Strongest Among Nonferrous Metals—Tin Conspicuous for Weakness—Other Metals in Routine Demand

Prices of the Week, Cents a Pound

	Copper			Straits Tin							
	Electro delivered	Lake delivered	Casting refinery	New York Spot	New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Oct. 31	16.00	16.12½	15.87½	49.50	49.12½	6.50	6.32½	6.25	23.90	10.50	35.00
Nov. 1	16.00	16.12½	15.87½	49.75	49.62½	6.50	6.32½	6.25	23.90	10.40	35.00
Nov. 2	16.00	16.12½	15.87½	49.75	49.37½	6.50	6.32½	6.25	23.90	10.37½	35.00
Nov. 5	16.00	16.12½	15.87½	49.00	48.62½	6.50	6.32½	6.25	23.90	10.37½	35.00
Nov. 6 Holiday											

NEW YORK, Nov. 6.—Copper continues in the strongest market in the nonferrous group, while the tin market on the other hand is outstanding because of its weakness. Trading in all the metals is quiet but shipments to consumers are large in all positions. Aside from the rise and fall of tin, prices are practically unchanged on all classes of metal.

Copper—Some business is being done every day on the basis of 16.00c, delivered Connecticut. This trading is more a matter of shipments against old orders than new buying, however. Producers are well sold through January. Some users still need a little metal for this year. There appears to be plenty of available metal against such needs.

One of the custom melters recently let it be known that he had some copper for November and December delivery. Metal from the custom smelter generally is not sold as far ahead as other copper. Export sales have been quiet the past few days. The present slackness in the demand is welcomed by producers, for the market was getting out of hand when it advanced to 16.00c. Strong statistics for October are expected to appear in a few days. Brass and copper rolling mills are working at normal capacity, and are unusually well booked.

Zinc—Prime western zinc continues in routine demand. The bulk of the business is done at 6.25c, East St. Louis, but now and then a limited quantity is sold a shade less. Recently there was talk about a firmer undertone, but the interest shown in the market at that time was not maintained. The zinc ore market continues steady at $40 a ton. High-grade zinc is unchanged and moving at a good rate.

Tin—The market in this country went up for several days in the past week, a small amount of business being done as high as 50.00c. A small group in London appeared to have entire control of the world situation. Here the consumers stayed out, as no one in this country appeared to have faith in the market. The result of this resistance was the beginning of a break on Friday, with the market on Monday falling back to 49.00c. A small premium was retained on spot, despite the fact that stocks in this country are the largest in several years, and a similar statement may be made of the world visible supply. Record-breaking shipments are expected from the Straits this month, and so it is likely that the visible supply will increase again. Consumption is unusually large, but world output seems to be keeping slightly in excess of it, so that stocks have increased about 6000 tons in a year.

Lead—Moderate activity has prevailed on most days lately while prices are firm and unchanged. Weakness in London, especially on spot lead, has had a tendency to hold users back here. Consumption of lead appears to be going very well, and producers are well sold for November. Little buying has been done yet for December delivery.

Aluminum—Shipments continue large, while prices are unchanged and firm.—*Daily Metal Trade.*

Mill Products

Base prices cents per pound f.o.b. mill

SHEETS	
Yellow brass (high)	20.50
Copper, hot rolled	25.00
Lead, full sheets (cut ¼c more)	10.00
Zinc sheet (100-pound base)	9.75
Zinc strip (100 pound base)	8.75
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBES	
Yellow brass (high)	25.50
Copper	26.37½
RODS	
Yellow brass (high, full turnings)	18.37½
Naval brass	21.00
WIRE	
Copper, car lots	17.87½
Yellow brass (high)	21.00

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	10.00 to 10.25
Chicago	10.75 to 11.00
Cleveland	10.75 to 11.00
HEAVY YELLOW BRASS	
Cleveland	8.00 to 8.25
ZINC	
New York	3.50
Cleveland	3.00 to 3.25
HEAVY COPPER AND WIRE	
New York	13.00 to 13.25
Boston	12.75 to 13.00
Chicago	12.50 to 12.75
Cleveland	13.00 to 13.25
RED BRASS BORINGS	
New York	9.50 to 9.75
YELLOW BRASS TUBING	
Cleveland	8.25 to 8.50
LIGHT COPPER	
New York	11.25 to 11.50
Chicago	11.00 to 11.25
Cleveland	11.50 to 11.75
LIGHT BRASS	
Boston	6.25 to 6.50
Chicago	7.25 to 7.50
Cleveland	6.25 to 6.50
ALUMINUM	
Clippings, Cleveland	17.75 to 18.00
Borings, Cleveland	8.75 to 9.00
Cast, Cleveland	12.75 to 13.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt Aluminum No. 12	15.50 to 16.50
Brass ingot, 85-5-5-5	14.25 to 14.37½

Coke By-Products

Naphthalene Reduced One Cent—Toluol, Benzol Demand Heavy

New York, Nov. 6.—A reduction of one cent a pound on flake and ball naphthalene is a feature of the coal tar by-products market, prices now holding at 5 to 6 cents, works. Meanwhile, demand for naphthalene is light, although some interest is shown in material for spring delivery.

Exceedingly heavy demand still prevails for toluol and benzol. To date distributors have had little opportunity to see what effect the recent advances in these products will have on production, but are hopeful they will have a stimulating effect. With consumers of toluol in particular using commercial xylol and solvent naphtha to fill in their needs owing to scarcity of toluol, the market on these two products is firm, with stocks moving well.

Spot demand for sulphate of ammonia continues sluggish.

Coke Oven By-Products

Per Gallon at Producer's Plant in Tank Lots

	Spot
Pure benzol	$0.23
90 per cent benzol	0.23
Toluol (nominal)	0.40
Salvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05 to 0.06
Naphthalene balls	0.05 to 0.06
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.30

Quicksilver Is Easy

New York, Nov. 6.—Quicksilver is easy but some interest is shown, at $124.50 to $125 a flask.

Warehouse

October Rate of Demand Is Carrying Over Into November—Better Deliveries May Be Reflected Soon—Prices Steady

IMPETUS from October is maintaining warehouse business in iron and steel at a high level. It may be, however, that with the mills catching up somewhat in deliveries that emergency calls for material will diminish. This situation causes no immediate concern. Prices generally are well maintained.

Boston—The slight indication to weakness that appeared for a time in structurals has been eliminated and a rather firm situation prevails. This brings a firm situation in practically all lines, and there also has been a somewhat better demand. Betterment in fabricating, foundry and other lines appears to be imparting a livelier interest all around.

New York—Slightly less active, jobbing demand still is brisk. Some sellers report October one of the best months of the year. Prices continue firm except on sheets. In these the recent stronger tendency seems to have disappeared.

Buffalo—Sales by jobbers during October approached record proportions for that month. Prospects for continued good business in November are bright. Prices are firm without pressure from mill competition for small lots.

Philadelphia—Jobbers still report a good volume of business. Prices here are firm but some irregularities continue to be noted in the upstate territory.

Pittsburgh—Warehouse demand is brisk. One jobber reports October business twice that of September. Hot-rolled bars and sheets are receiving the greatest call. Shading of current quotations is slight.

Cleveland—More steel was sold in October by some jobbers than in any single month in five years. Contributing to this condition are the increasingly extended deliveries by mills, especially of bars. Small fabricators are not buying so much but all other consuming lines including numerous machine shops are ordering. This makes up an exceptionally varied demand.

Cincinnati—Warehoue products move well in most lines, with a slight slump in demand for building materials. Rods and bars, however, are reported at 3.30c with fair movement on contract but little new business coming. Cold drawn steel is 3.85c to 4.35c. Sheets are unchanged.

St. Louis.—Warehousemen have received replenishment orders for a variety of goods in pleasing volume. Galvanized sheets are brisk with shipments to the South and West exceptionally heavy.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles	3.30c
New York †††‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	2.50c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.50c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.25c to 3.00c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles lcl.	3.00c
New York	2.80c to 3.24c
Philadelphia	2.85c
Pittsburgh	2.75c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	2.90c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Phila., 3/16-in.*	2.90c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.45c
Boston, 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.90c
Portland	3.75c
Philadelphia *†	3.00c
Pittsburgh**	3.00c to 3.10c
San Francisco	3.90c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.54c

NO 24 BLACK SHEETS

Baltimore	3.10c to 4.00c
Boston	4.85c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.50c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York†††	3.70c to 3.80c
Philadelphia*†	3.85c
Pittsburgh‡	3.55c to 3.80c
Portland	4.90c
San Francisco	4.95c
Seattle	5.00c
St. Louis	4.10c
St. Paul	3.95c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore	4.10c to 4.75c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.65c
Cincinnati	4.75c
Cleveland	4.35c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York†††	4.25c to 4.50c
Philadelphia*†	4.60c
Pittsburgh‡	4.40c to 4.55c
Portland	5.50c
San Francisco	5.40c
Seattle	5.50c
St. Louis	4.95c
St. Paul	4.90c
Tulsa	6.50c

BANDS

Baltimore	3.85c
Boston	4.015c to 5.00c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	4.00c
Philadelphia*	3.35c
Pittsburgh	3.60c
Portland	3.75c
San Francisco	4.10c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.50c to 4.66c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.25c
Cleveland	3.65c
Detroit	4.15c
New York‡‡	4.50c
Philadelphia*	3.60c
Pittsburgh	4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore	3.35c	3.85c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.50c	4.00c
Philadelphia*	3.45c	3.95c
Pittsburgh	3.60c	4.10c
Portland (a)	4.75c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.76c	5.26c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.00c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, rounds	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. ‡10 to 24 bundles. **25 or more sheets. *†50 or more bundles. †††Newark-Jersey City 4.00c on black and 4.70c on galvanized the more prevalent figures.

Pacific Coast

Columbia River Bridge Tonnage Let to Bethlehem—Other Business Moderate

PLACING of 11,000 to 12,000 tons of structurals with Bethlehem Steel Corp. for a bridge at Longview, Wash., over the Columbia river, is the most important letting in some time on the coast. Several tank lettings absorb plate tonnage. Moderate tonnages for other projects are placed and others are pending. Prices have not undergone change. New inquiry continues to come out.

San Francisco, Nov. 3.—(*By Air Mail*)—Trading in iron and steel products on the Pacific coast has shown little improvement the past two or three weeks and most awards continue to involve small lots. The plate market was most active, the Western Pipe & Steel Co. securing a number of tanks for Los Angeles oil companies, calling for more than 4000 tons. The largest structural award of the week involved 175 tons for a telephone building at San Bernardino, Calif., booked by the Union Iron Works.

Pig Iron and Coke

Foundry operation, especially jobbing plants, continues on a limited scale and sales and inquiries for foundry iron and coke are limited to unimportant tonnages. No change has been made in pig iron quotations. English beehive coke ranges around $16 a net ton, delivered incoming dock, while English by-product coke is at $11.50 to $13 a ton.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00

*C.i.f. duty paid.

Bars, Plates and Shapes

The largest award of concrete bars reported this week involved 350 tons for highway work in Ventura county, Calif., awarded to S. Pearson, Santa Monica, an unnamed interest booking the steel. Awards so far this year aggregate 74,084 tons, compared with 51,485 tons for the corresponding period in 1927. Among new inquiries were 315 tons for a school in Oakland, 114 tons for a bridge over the Missouri river at Wolf Point, Mont., and 188 tons for a bridge near Benham, Calif. No award has been made on 1800 tons for the Life Science building at Berkeley or on 525 tons for the Bernal cut project in San Francisco. Merchant bar material continues fairly firm at 2.35c c.i.f., while concrete bar prices on out-of-stock material both at Los Angeles and San Francisco are general at 1.80c, base.

Featuring the plate awards of the week were six 118,000-barrel tanks for the Texas Co., Los Angeles, involving 1800 tons, three 170,000-barrel tanks for the Wilshire Oil Co., Los Angeles, calling for 1650 tons and one 80,000 and three 10,000-barrel tanks for the Hancock Oil Co., Los Angeles, requiring 565 tons, all placed with the Western Pipe & Steel Co. So far this year awards booked total 37,187 tons as compared with 62,209 tons for the same period last year. The United States engineer office, San Francisco, this week opened bids on 185 tons of 20-inch shore pipe. Quotations on domestic material continue unchanged at from 2.20c to 2.25c, c.i.f. coast ports.

New inquiries for structural shapes continue slow and awards this week totaled less than 200 tons. So far this year 113,462 tons have been booked, compared with 124,858 tons for the corresponding period in 1927. Pending business exceeds 10,000 tons, new inquiries including 667 tons for a bridge over the Missouri river in Montana, 300 tons for two apartments on Broadway, San Francisco, and 170 tons for a bridge near Benham, Calif. Plain structural shapes from domestic mills continue firm at 2.35c c.i.f.

Other Finished Material

The only cast iron pipe award of importance placed his week involved 144 tons for a street improvement project in Tulare, Calif., placed with an unnamed interest. So far this year 70,106 tons have been booked as compared with 68,569 tons for the same period last year. The only new inquiry of the week calls for 109 tons for Lewiston, Idaho. Oil country goods in the southern part of the state continue in active demand, oil well casing especially moving well. The Hancock Oil Co., Los Angeles, has placed 785 tons of 4 and 6-inch line pipe with Allen Bros. Inc., Los Angeles.

Seattle Tonnage Large

Seattle, Oct. 31.—Completion of financial arangements and award of contract for steel to be used in the Longview bridge across the Columbia river featured the northwest iron and steel market this week. Bethlehem Steel Co. will furnish the structurals, estimated at 11,000 to 12,000 tons, the largest tonnage placed in this district in several years. The total cost will be $5,800,000. The structure, which will be a toll bridge, will be erected for the Columbia River Longview Bridge Co.

While full details are not yet obtainable, the steel company has awarded a sub-contract for fabricating the materials to the Wallace Bridge & Structural Steel Co., Seattle. The Pacific Bridge Co. will erect the steel and also construct the approaches. The job involves a large tonnage of reinforcing materials but the quantities are not yet released. Plans are being completed by J. B. Strauss, Chicago.

Bars, Plates and Shapes

Mill prices of finished steel are unchanged, bars and structurals firm at 2.35c and plates steady at 2.25c.

Local steel mills report specifications slowing up and the jobbing trade is buying in less volume. Reinforcing awards of the week consisted entirely of small tonnages although the aggregate was sufficient to insure sustained operations. Several large concrete jobs are to be up for figures within sixty days including 2500 tons for the addition to the county-city building, the power plant of the Puget Sound Power & Light Co. and addition to the Olympic hotel.

Opening of bids for a 15,000-foot 24-inch cast iron or steel pipe for the Volunteer park project was postponed by Seattle city officials for a week and the award will probably not be made until Nov. 9. This job will involve 550 tons of plates or 1640 tons of cast iron main. No new inquiries for plates have developed this week.

Aside from the Longview bridge award there has been little interest in structurals this week although 425 tons for the Weyerhaeuser saw mill at Longview are pending. State highway commission will open bids Nov. 20 for two bridges involving 100 tons of shapes and 28 tons of reinforcing. Montana highway commission has called for new bids for the Wolf Point bridge on which the lowest bid, $487,023, exceeded the engineers' estimates. For the Clarks Fork bridge near Paradise, R. E. Meith, Portland, Oreg., was low bidder at $196,229.

Albina Iron Works, Portland, has received a contract to build a 90-ton steel vessel for the coast and geodetic survey on a low bid of $56,470. The tonnage of shapes and plates involved is not stated.

Finished Materials

Contract for furnishing 32 electric motors from 150 horsepower down for a lumber plant a Omak, Wash., has been awarded to Fairbanks, Morse & Co. Diamond Iron Works, Puget Sound Machinery Depot and Prescott Iron Works are furnishing machinery and equipment.

Old Materials

The market for iron and steel scrap is unchanged, both steel and cast iron scrap maintaining the firmness of the last few weeks. The former is quoted $10 and $11 gross at local steel plants while foundries are paying an average of $15.50 gross for good grades of cast iron. Four shipping board vessels, 8800 to 9500 tons gross tonnage, have been sold to Pacific Coast firms at $25,000 each. These steamers will be sent to Japan with cargo and will be scrapped after reaching port.

Pails, Tubs Increase

Washington, Nov. 6.—September production of galvanized pails and tubs advanced comfortably over August, according to the department of commerce. Monthly comparisons follow:

	PAILS, (In dozens)		TUBS, (In dozens)		OTHER WARE (In dozens)	
	Production	Shipments	Production	Shipments	Production	Shipments
9 mos.	1,311,267	1,346,532	328,382	344,302		
Sept.	127,608	127,530	37,776	44,852		
Oct.	151,495	141,101	39,096	41,368		
Nov.	112,690	110,275	35,602	28,578		
Dec.	93,273	90,254	22,090	17,013		
1927	1,668,725	1,688,162	425,080	421,161		
1928						
Jan.	125,536	149,304	32,678	35,689		
Feb.	165,757	162,153	28,513	26,334		
March	173,592	175,472	50,904	45,205		
April	208,544	201,119	31,545	36,452		
May	177,170	155,561	39,206	35,143		
June	141,448	144,385	48,038	*44,833		
July	114,343	121,415	61,688	47,856		
Aug.	127,797	142,487	37,846	44,377		
Sept.	150,845	139,183	55,850	50,606		
9 mos.	1,397,097	1,405,051	389,364	369,246		

Ship Fewer Locomotives

Washington, Nov. 6.—Industrial locomotive shipments in October totaled 36, a decline from September, department of commerce statistics show. Monthly comparisons follow:

Year and Month	Shipments Domestic Total	Steam	Electric	Unfilled orders Domestic Total	Steam	Electric
1927						
Oct.	112	81	12	182	97	45
(10 mos.)	950	654	128	.....	.....	.....
Nov.	52	31	7	145	74	42
Dec.	72	41	13	232	178	39
1927	1,074	726	148	.....	.....	.....
1928						
Jan.	47	22	23	222	161	38
Feb.	59	43	11	204	146	40
March	70	44	15	178	123	37
April	46	38	6	188	129	41
May	41	29	10	220	138	39
June	51	39	11	201	109	37
July	46	19	5	198	98	59
Aug.	34	23	4	204	135	26
Sept.	41	28	2	178	118	27
Oct.	36	26	.....	170	113	29
(10 mos.)	471	311	87	.....	.....	.....

Production Index Rises

Washington, Nov. 6.—Iron and steel production index for September was 127, compared with 121 for August and 98 for September, 1927, taking 1923-1925 as 100, according to the department of commerce.

September index for nonferrous metals was 117, compared with 116 for August and 107 for last September.

Unfilled orders for iron and steel in September, were 75 compared with 75 for August and 65 for September, 1927.

Norton Iron Works Sold

Effective Oct. 1, the American Rolling Mill Co., Ashland, Ky., purchased the Norton Iron Works of the same city. The plant of the Norton company includes a blast furnace of 120,000 gross ton capacity; a 14-inch two-high nail plate mill; a wire mill with 90 drawing blocks for wire from 0 to 21 gage; equipment for cut and wire nails and barbed wire; and one galvanizing pan.

Furniture Orders High

Washington, Nov. 6.—Steel furniture orders in September totaled $2,689,009, the highest since June, according to the department of commerce. Monthly comparisons follow:

	Business Group Orders received	Business Group Shipments	Shelving Orders received	Shelving Shipments
	(In Dollars)			
1926				
Total	31,393,171	31,429,140	7,340,351	7,837,017
1927				
Sept.	2,367,857	2,218,602	607,905	531,154
9 mos.	23,023,247	23,129,449	5,605,824	5,476,315
Oct.	2,410,552	2,379,557	551,259	619,293
Nov.	2,476,230	2,856,181	574,763	590,764
Dec.	2,850,314	2,740,602	619,276	577,910
Total	30,760,343	31,105,789	7,351,122	7,264,282
1928				
Jan.	3,248,165	2,712,663	768,748	680,264
Feb.	3,295,861	2,908,527	741,310	681,999
March	3,283,329	3,169,351	841,098	813,607
April	2,915,344	3,065,637	740,658	716,104
May	3,085,638	3,213,291	732,921	768,988
June	2,764,085	3,009,229	727,060	720,253
July	2,594,216	2,515,482	713,330	722,516
Aug.	2,619,230	2,564,633	863,420	836,104
Sept.	2,689,009	2,754,135	799,850	678,422
9 mos.	26,494,877	25,912,958	6,938,395	6,636,257

Films Will Be Shown

A feature of the seventh National Exposition of Power and Mechanical Engineering this year will be a motion picture program running through the entire week of the show from Dec. 3-8. The films cover a wide field of industrial subjects and are from one to five reels in length. Over 450 exhibitors have arranged for space at the exposition which will be held in Grand Central Palace, New York.

Pig Iron Prices Strong

(*Concluded from Page* 1201)

its second stack Nov. 6, exactly nine years from the time it was blown in and made a record run. The stack has been down several months for relining.

Youngstown, O., Nov. 6.—Having arranged lake transportation for its Lake Superior iron ore supplies, the Struthers Furnace Co. is set for relighting its stack here about Dec. 1. Further, it has begun selling against this potential basic iron producing capacity on the basis of $18, furnace. Sales of No. 2 foundry are being made by two interests at $18, valley, while the malleable market level is not so clear as yet, one producer selling at $18 and another at $18.50, valley. A Sharpsville, Pa., merchant interest is reported to have sold 60,000 tons of basic for delivery in the next several months to a steelworks at Butler, Pa., the price not being disclosed. There still remain two and possibly three stacks idle in the valleys that may be relighted. A steelworks stack in the valley which went out of blast recently for 10 to 15 days for repairs, likely will be out for a longer period.

Cincinnati, Nov. 6.—The pig iron market is more active. Sales in the past week total 3000 tons for one firm, including 1000 tons of low phosphorus iron sold to an Ohio melter, and 1500 tons silvery iron for a Michigan user. Another firm booked 1200 tons. Two cars of 8 per cent silvery iron were sold for delivery this month to an Indiana melter. One inquiry for 2000 tons of foundry iron is reported from a Springfield, O., user. Prices are firm. It is reported a Tennessee furnace has rescinded its offer to sell at $16.25 for first quarter.

Chicago, Nov. 6.—Despite the increase of $1 a ton to $20 on Oct. 31 in the Chicago pig iron market, buying is continuing at a good rate for first quarter. The price was advanced after disappearance of the $19 price on Oct. 30, when $19.50 was quoted nominally, while the leading interest was out of the market for that day pending final decision as to whether the new price would represent an advance of 50 cents or $1. Prices of foundry and malleable are identical. It is intimated that a broker may have obtained $20.50 for some carloads for prompt delivery. The producers' new prices represent an advance of $2.50 in the Chicago district since Aug. 24. Numerous large inquiries are out, one for 5000 tons of foundry and malleable iron for a melter west of Chicago, and several for 2000 tons each in the Chicago district. Important inquiries are expected later in the week for iron for first quarter. Furnace stocks are said to be the lowest since 1922, all iron in the yards of furnaces having been sold for the year.

It is reported here that Jackson county silvery prices will be advanced one dollar per ton tomorrow.

St. Louis, Nov. 6.—Pig iron sales are the largest in months. Included in a total of 45,000 tons in the past several days was 33,000 tons of basic, sold to nearby Illinois steelmakers. All the basic iron but a single lot of 15,000 tons is for delivery this year. This activity is construed as indicating more car business. Prices are strong, and offerings of all grades of iron are much more plentiful from all producers. The St. Louis Gas & Coke Corp. has stepped up its price 50 cents to $20, f.o.b. Granite City. October shipments by the leading local producer were the heaviest for any single month in its history. It is hastening repairs on its idle stack and hopes to have it in blast in a few weeks.

Birmingham, Ala., Nov. 6.—Pig iron buying continues hand-to-mouth, notwithstanding intimations of higher prices for first quarter. Some melters have offered to take round tonnages at concessions on present prices. Sales now being made are for delivery this year, at $16.25, base, Birmingham.

Toronto, Ont., Nov. 6.—Demand for merchant pig iron in the Canadian market is steady. Spot sales continue at a weekly total of about 1200 tons. The daily melt ranges from 80 to 100 per cent. October spot sales marked a new high monthly record for this year. Prices are firm.

Public Is Offered Shares in Ryerson Inc.

Participation in Joseph T. Ryerson & Son Inc., Chicago, is offered the public for the first time since the company was organized 86 years ago as a result of the purchase of a block of the company's securities by a group of Chicago banking houses.

The financing includes an offer to the public of $5,000,000 of 15-year 5 per cent sinking fund debentures and 100,000 shares of capital stock. The debentures are priced at 96 to yield about 5.37 per cent. The stock, which will pay $2 annual dividends, is offered at $39 a share to yield about 5.10 per cent. The proceeds from the debentures will be used in part payment for assets and business of the predecessor corporation.

Articles of incorporation have been filed with the secretary of state of Illinois under the name of Ryerson Inc. The capital is listed as 435,000 shares of no par value. It is stated that 35,000 shares of unissued stock may be sold to employes upon terms approved by directors.

Upon completion of this financing the corporation's capitalization will consist of $5,000,000 of debentures and 400,000 shares of capital stock. The corporation is a large distributor of steel for immediate delivery. Besides the Chicago plant at 2553 West Sixteenth street, warehouses of the company are located at Jersey City, N. J., Cleveland, Detroit, Buffalo, Cincinnati, St. Louis, Boston and through subsidiary, Milwaukee. Chicago and Jersey City plants include facilities for fabrication.

Iron, Steel River Traffic Sets Record

Pittsburgh, Nov. 6.—September marked another high point in river traffic of iron and steel products in the Pittsburgh district, according to the United States engineers' office here. Tonnage moved over the Monongahela river last month rose to 136,227 tons, compared with 109,738 tons in August and 102,778 tons in September, 1927. This is the largest monthly total on record. On the Ohio river the movement increased from 124,066 tons in August to 125,062 tons in September, against 98,809 tons last September. Traffic over the Allegheny river totaled only 200 tons.

September activity brought the total for nine months on the Monongahela and Ohio rivers to a new high peak, the 817,001 tons recorded for the former stream being larger than the 12 months of any preceding year and comparing with 469,688 tons in the corresponding 1927 period. The nine-month total for the Ohio river was 893,933 tons, against 477,506 tons a year ago. Following are monthly comparisons for iron and steel:

1928	Allegheny	Monongahela	Ohio
September	200	136,227	125,062
August	50	109,738	124,066
July	.....	91,834	90,145
June	2,350	75,422	96,156
May	1,863	86,722	112,818
April	470	87,581	110,356
March	725	77,908	77,945
February	385	73,360	87,635
January	330	78,069	69,750
1927			
December	900	65,922	68,472
November	950	73,204	70,863
October	2,700	80,273	80,423
September	1,750	102,778	98,809
August	3,102	102,034	91,018
July	890	59,676	63,941
June	2,525	31,894	42,220
May	300	41,954	50,130
April	150	37,811	46,750
March	600	36,112	29,016
February	.....	29,529	29,211
January	.....	27,900	26,409

Barrel Output Declines

Washington, Nov. 6.—Production of steel barrels in September declined from August, according to the department of commerce. Members of the Steel Barrel Manufacturers' association, Cleveland, report shipments of 328,597 with unfilled orders of 377,922. Production of I. C. C. barrels was 24.3 per cent, light barrels 54.5 per cent, and all barrels 48 per cent. Monthly comparisons follow:

1927	Production	Shipments	Unfilled orders for delivery within 30 days	Unfilled orders for delivery beyond 30 days
Sept.	521,899	525,374	235,181	889,256
Total (9 mos.)	5,107,025	5,099,877	.....	.....
Oct.	578,408	572,893	211,665	788,894
Nov.	500,909	497,345	182,065	633,724
Dec.	444,227	454,638	221,897	1,086,468
1928				
Jan.	475,906	474,159	241,145	1,110,652
Feb.	518,944	514,362	297,889	1,119,738
Mar.	636,855	644,521	304,043	1,039,540
Apr.	667,827	661,949	357,131	919,863
May	696,281	694,843	324,549	932,568
June	712,779	717,496	319,443	840,313
July	647,844	645,881	341,346	891,066
Aug.	677,313	675,600	319,495	744,863
Sept.	593,255	595,640	292,686	704,134
Total (9 mos.)	5,627,004	5,624,451	.....	.....

Stipulation Too Harsh

Washington, Nov. 6.—Attorneys for the federal trade commission are understood to have drawn up a stipulation in the case of the commission against the Bethlehem Steel Co. growing out of the latter's acquisition of the Lackawanna and Cambria properties several years ago. The stipulation, whose acceptance probably would terminate the action, is said not to be acceptable to the Bethlehem company, and at least two members of the commission are believed to feel too much is asked of the company.

Form Krupp Nirosta Co. to Pool Patents

New York, Nov. 6.—The Krupp Nirosta Co. Inc. 40 Rector street, has been organized for pooling alloy steel patents belonging to the Krupp Steel Works of Germany and the Ludlum Steel Co., Watervliet, N. Y. In addition to these two interests, the Central Alloy Steel Corp. and the Firth-Sterling Steel Co. are interested in the agreement as licensees for the use of the patents. The formation of the new company has been announced by Dr. Rudolf Preussing and Heinrich Arzt, representatives of the Krupp company, as follows:

"The main object of the Krupp Nirosta Co. Inc. is not to act simply as a patent-holding company, but to be helpful as a service company and as a medium for the exchange of helpful ideas along the lines of development. Arrangements have been made so that the licensees, including the Central Alloy Steel Corp. of Massillon, O.; the Firth-Sterling Steel Co. of McKeesport, Pa.; the Ludlum Steel Co. and others will have an important voice in its direction.

"Both the Krupp and Ludlum companies have assigned to the new company important patents covering a steel known as nirosta and other alloy steels. Nirosta, besides being stainless, is said to be resistant to certain acids."

The executive committee of the new company consists of J. M. Schlendorf, vice president of Central Alloy, Steel Corp., H. G. Batcheller, vice president of Ludlum Steel Co., Richard Prosser and Otto von Schrenk. Edwin Corning, president of Ludlum, will be chairman of the board, and Mr. Batcheller president. The directorate will include F. J. Griffiths, vice president of Central Alloy Steel Corp.; Henry E. Cooper, vice president of the Equitable Trust Co.; and Harold O. Baker, of the New York firm of Jesup & Lamont.

Announcement was made also by the Krupp representatives that an agreement had been entered into with the General Electric Co. through which that company will use in the United States an alloy known as carboloy. Ludlum Steel Co. and the Firth-Sterling Steel Co. will manufacture it in this country under license arrangements.

The American Society of Mechanical Engineers, New York, has issued a preliminary water cooling equipment code which it is expected will be finally adopted during the annual meeting of the society on Dec. 4-7.

Industrial Men in the Day's News

Alexander E. Walker, General Sales Manager, Republic Iron & Steel Co.

AS HE closes his seventeenth year in the steel industry, he advances another step upward with the company he has served for 12 years.

HE GAINED wide and valuable experience in the selling of steel products before becoming associated with his present company, and he has profited much because of it.

THOUGH generally deeply imbedded in his work, he derives a great amount of pleasure from playing an occasional game of golf.

NEARING the close of 17 years affiliation with the iron and steel industry, Alexander E. Walker progressed another step upward when he was appointed general manager of sales of the Republic Iron & Steel Co., Youngstown, O., succeeding Wilbur B. Topping, whose resignation was announced briefly in IRON TRADE REVIEW, issue of Oct. 11.

Mr. Walker is a graduate of the University of Michigan, Ann Arbor, Mich., with a degree in engineering, completing his course in 1910. In 1911 be became associated with Riter-Conley Co., Pittsburgh, engaged in construction work. In the spring of 1911 he went with La Belle Iron Works, Steubenville, O., then an independent steel concern but now a part of the Wheeling Steel Corp.

After he had spent five months in the Steubenville works, Mr. Walker was assigned to the Chicago sales office of the company. Remaining there for over four years, he laid the foundation for his subsequent successes in the selling of steel products.

When Daniel Geary needed an assistant in selling wrought iron steel pipe made at the new Haselton tube works of the Republic Iron & Steel Co., Mr. Walker was given the position, going to the company's home offices at Youngstown on Feb. 1, 1916. In the spring of 1919 he was named assistant general manager of sales for the Republic company.

When the Trumbull Steel Co. plants at Warren and Leavittsburg, O., were absorbed by the Republic company, Mr. Walker's previous experience in the sheet sales department with La Belle company came into play. Up to that time, Mr. Walker had specialized in tube sales for Republic.

Then when Wilbur B. Topping resigned, Mr. Walker, as assistant general manager of sales, was immediately chosen to fill the vacancy created in that important position.

Although deeply engrossed in his work nearly all of the time, Mr. Walker's best-liked sport is golf. He is six feet tall and commands a powerful swing in his favorite recreation.

JOHN A. MANLEY, who for three years has been manager of sales department for Fairbanks, Morse & Co., Chicago, was recently elected vice president in charge of sales of such products as engines, pumps, motors, scales, railway equipment, small light and automatic water plants. Mr. Manley's advancement in business has been rapid. He formerly was manager of accounts for the advertising agency of Henri, Hurst & McDonald, Chicago. In connection with his advertising work, he made a detailed study of the problems of industrial business development. As a result of this work, he was brought into the Fairbanks-Morse organization. In 1911 he was graduated from Northwestern university and entered the sales department of the Republic Tire & Rubber Co. Four years later he joined a Chicago newspaper's advertising staff. Later for two years he studied the problems of the retail merchant with Hart, Schaffner & Marx, and then became affiliated

with Henri, Hurst & McDonald.

* * *

Gano Dunn, president of the J. G. White Engineering Corp., New York, has been elected an alumni trustee of Columbia university.

* * *

Frederick W. Hartman has resigned as city manager of Alma, Mich., to become assistant manager of the western division of the National Meter Co., with offices in Chicago.

* * *

George L. Bitting has resigned as director of sales for the Bunting Brass & Bronze Co., Toledo, O., having been with that company since May, 1927.

* * *

E. S. Eggers, vice president of the Union National bank, Pittsburgh, has been named president of the Stronach Nail Co. with manufacturing headquarters at Ellwood City, Pa.

* * *

T. R. Berkley, former plant manager of the Holmes Foundry Co. Ltd., Sarnia, Ont., has been appointed foundry superintendent for the Oakland Motor Car Co., Pontiac, Mich.

* * *

Clifford F. Messinger, vice president, Chain Belt Co., Milwaukee, was recently elected a director of the Second Wisconsin National bank, Milwaukee.

* * *

A. S. Hawks, former chief engineer of the Busch-Sulzer Diesel Engine Co., St. Louis, has been appointed assistant works manager of the Worthington Pump & Machinery Corp., Buffalo.

* * *

Frederick H. Payne, Greenfield Tap & Die Corp., Greenfield, Mass., was re-elected president of the Associated Industries of Massachusetts at a recent meeting of the executive committee.

* * *

Herbert C. Hale, special representative in Cleveland for the Elliott Co., has been transferred to Baltimore to handle that company's governmental business exclusively. He has been located in Cleveland for the past 20 years.

* * *

Tore Franzen has resigned as assistant chief engineer of the Detroit Steel Products Co., Detroit, to join the experimental department of the Chrysler Motor Corp. Mr. Franzen designed spring suspension for high-speed cars.

* * *

Leslie Allen is works manager for the McClintic-Marshall Construction Co., Buffalo, now operating the Lackawanna bridge works which it recently purchased from the Bethlehem Steel Co. H. C. Walton is in charge of sales, with offices in the Marine Trust building, Buffalo.

* * *

O. J. Crowe, formerly identified with C. R. Wilson Body Co., Detroit, the American Body Co., Buffalo, and latterly with the Motor Products Corp., Detroit, is now affiliated with the Herron-Zimmers Moulding Co., Detroit, manufacturer of body mouldings.

* * *

Mark Neichin, formerly in charge of the Crown Metal Products Co. Inc., Brooklyn, N. Y., has sold his interest and is head of the recently incorporated Besteel Metalcraft Corp., 1720 Atlantic avenue, that city, manufacturer of steel cabinets and radiator enclosures.

JOHN A. MANLEY

* * *

Hugh White has become identified with the Truscon Steel Co., Youngstown, O. as executive head of its aeronautics division, in charge of hangar construction and hangar door manufacture. Mr. White formerly was aviation editor of the *Free Press*, Detroit.

* * *

E. L. Lalumier, former controller of Armour & Co., Chicago, has been elected treasurer of the Studebaker Corp., South Bend, Ind. He succeeds J. L. Overlook who has become assistant to the president. H. E. Dalton was elected secretary but continues also as general auditor.

* * *

Howard E. Oberg, who for some time has respresented the Billings & Spencer Co., Hartford, Conn., manufacturer of forging machinery, drop forged tools, etc., in its machinery division at Detroit, has been recalled to the main office, having been appointed sales manager of the machinery division.

* * *

Allen H. Warner has been elected president of the Sherman Mfg. Co., Battle Creek, Mich. Mr. Warner was chosen to fill the vacancy left by the death of Howard B. Sherman, founder of the company.

Donald P. Ordway, director of the Sherman company, has been elected vice president.

* * *

Fred C. T. Daniels, formerly division superintendent of open-hearth plant No. 1, steel and roll foundries, at the Bethlehem, Pa., plant of the Bethlehem Steel Corp., has become vice president in charge of operations of the Garrison and Midland plants of the Mackintosh-Hemphill Co., Pittsburgh. Mr. Daniels returns to his first field of endeavor, having entered the employ of Mackintosh-Hemphill upon his graduation from Wooster Polytechnic institute in 1904.

In 1911 Mr. Daniels became connected with the Pittsburgh Iron & Steel Foundries Co., Midland, Pa., as assistant superintendent and metallurgist, being especially interested in the development and pioneering of alloy products for the rolling mill industry. From 1914 to 1923 he was employed by the Wheeling Mold & Foundry Co., and from 1923 to 1928 he was affiliated with the Bethlehem Steel Corp.

New Jersey Scrap Men Form Chapter

The fifth chapter of the Institute of Scrap Iron and Steel was organized at a meeting of dealers of New Jersey, held in Newark, Oct. 29. Michael V. Bonomo, Schiavone & Bonomo Bros., Jersey City, was elected president and A. Isaac, of Elizabeth, was elected chairman of the executive committee.

E. C. Kreutzberg, eastern editor of IRON TRADE REVIEW, delivered an address at the meeting on the factors that control the price of scrap iron and steel. Benjamin Schwartz, director general of the institute, presided at the meeting.

Eight additional members applied for admission to the institute at this meeting. The conference also discussed several problems affecting the scrap iron industry, and requested the national office to take action in inequitable freight rates which were submitted to the institute for consideration.

Obituaries

FREDERICK S. BLACKALL, 63, vice president and general manager of the Taft-Pierce Mfg. Co., Woonsocket, R. I., maker of special machinery and precision tools, died Oct. 6. Mr. Blackall was identified with a number of other well known companies and in addition to offices at Woonsocket, maintained headquarters at 233 Broadway, New York. He spent a large part of his time in that city as consulting engineer, contractor and manufacturer of automatic machines, precision tools and printing machinery.

* * *

George P. Merrill, secretary and treasurer of Mitt & Merrill, Saginaw, Mich., died Oct. 14.

* * *

Egbert H. Gold, 60, president of the Vapor Car Heating Co., Chicago, died Nov. 3 at his country home at Holland, Mich, after a four months' illness.

* * *

James B. Pierce, 72, burgess of Sharpsville, Pa., for the past seven years, pioneer iron manufacturer of the Shenango valley, died at his home in Sharpsville, Oct. 25, following a lengthy illness.

* * *

Capt. Aaron F. Ward, 43, veteran river man, and master of steamboats owned by the Jones & Laughlin Steel Corp. and the Pittsburgh Coal Co., died at his home in Mt. Lebanon, Pa., Nov. 3.

* * *

Charles Edward Pattison, 64, a member of the association of Edison Pioneers and a member of Pattison Bros., New York, consulting engineers, died Nov. 2 at his home in Montclair, N. J.

* * *

William N. Voegtly Sr., 68, formerly engaged in the steel industry in Pittsburgh, died Nov. 4 at Youngstown, O. He formerly was secretary and treasurer of the Chester Rolling Mill Co.

* * *

Arthur E. Parsons, 61, patent attorney and general manager and treasurer of the Brown-Lipe Gear Co., Syracuse, died Oct. 31. Mr. Parsons was a director of the H. H. Franklin Mfg. Co. and other companies.

* * *

Burton S. Gier, 61, founder of the Gier Pressed Steel Co., Lansing, Mich., which was merged with the Motor Wheel Corp., died recently. Mr. Gier retired as vice president and treasurer of the Motor Wheel Corp. last January, due to failing health.

* * *

John R. Searles, since 1920 president and general manager of the Michigan Smelting & Refining Co., Detroit, until it was purchased recently by the Bohn Aluminum & Brass Corp., died Oct. 24 after an illness of several months.

* * *

Alfred G. Place, chief electrical engineer for the Youngstown Sheet & Tube Co., Youngstown, O., died Oct. 25 following an illness of several months. Mr. Place, who was 41, was vice president of the American Institute of Electrical Engineering.

* * *

W. H. Shoemaker, 64, who retired last August as superintendent of erection for the Phoenix Bridge Co., Phoenixville, Pa., on account of ill health, died Nov. 3, at his home there. Since his retirement he has been consulting superintendent of erection for that company.

* * *

Otto M. Eidlitz, 68, president of Marc Eidlitz & Son, New York, building contractors and steel erectors, died Oct. 30. His organization erected many prominent New York buildings. Mr. Eidlitz was the first umpire named by the War Labor board to adjust disputes between munition workers and employers in 1918 he also served as director of the Bureau of Housing and Transportation.

* * *

Walter W. Nowak, 45, European manager of the Niles-Bement-Pond Co. and the Pratt & Whitney Co., died in Paris Nov. 1. He had been affiliated with these companies since his graduation from Cornell university in 1905, representing them first on the Pacific coast and later in Chile, Argentina and Brazil. For ten years he had charge of all their European business with headquarters in London and Paris.

* * *

William H. Childs, who during the World war served as chairman of the subcommittee on coal tar products and raw materials of the council of national defense, died Nov. 2 in New York. He was born in Hartford, Conn., in 1857, locating as a young man in Manchester, Conn. At the time of his death he was a director of the Crucible Steel Co. of America and chairman of the Bon Ami Co. Inc. Mr. Childs at one time was president of the Barrett Co.

* * *

Lawrence A. Barrett, 28, mechanical engineer, associated with the Oilgear Co., Milwaukee, died Oct. 31, after a brief illness. Born in Thorp, Wis., he was graduated from the college of engineering of Marquette university, Milwaukee, He patented many devices relating to the application of oil gear transmission to machine tools. One of his best known inventions is a device for straightening malleable castings, which formerly was done by drop hammer.

* * *

Richard Devens, 62, long a leading figure in the eastern locomotive crane industry, died at his home in New York, Nov. 3, following a brief illness. Mr. Devens had been associated with the New York office of the Brown Hoist & Machinery Corp. over 36 years, for a considerable time, as the company's eastern manager. Upon the merging of this company with Industrial Corp., Bay City, Mich, a year or so ago, he became affiliated with the New York sales office of the Link-Belt Co., Chicago, where he remained until his death.

Canadian Plate Mill Is To Resume

The Dominion Foundries & Steel Ltd., of Hamilton, Ont., announces that it will shortly reopen its plate mill which was erected during the war and has since been idle. The mill, electrically operated, is said to be the only universal plate mill in Canada. It has been completely overhauled and preparations for production on a large scale are nearly complete. The company plan to make the first deliveries Nov. 15. Imports of steel plate from the United States in the last fiscal year amounted to $5,000,000, and the company expects to get a good share of this trade.

P. A. Myers, president of the F. E. Myers & Bro. Co., Ashland, O., recently presented a 10-acre recreation field to the city of Ashland and the Y. M. C. A.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

CARNEGIE STEEL CO. has all but one of its fleet of 14 steamboats with 358 barges working, carrying coal, coke and manufactured steel products. Most of the steamers are engaged in the Monongahela river between the mines and the Clairton by-product plant. The steamer CITY OF PITTSBURGH is enroute to Pittsburgh from New Orleans with a tow of 21 empties, one of the largest of its kind. The steamer MONONGAHELA of the same line is being conditioned at the Coal Valley marine ways for an early trip to the South.

* * *

GREAT LAKES FOUNDRY SAND CO. has moved its Detroit offices to 1356 Penobscot building.

* * *

PREST-O-LITE CO. INC., New York, has started production of dissolved acetylene in a new plant at 3155 Twenty-seventh avenue, North Birmingham, Ala. The plant is in charge of A. J. Topham, plant superintendent, and G. A. Andrews, district superintendent.

* * *

GROBLE GAS REGULATOR CO., Anderson, Ind., will erect a new building, doubling its productive capacity. The addition will be 24 x 80 feet. It will be of fireproof construction. The addition will be used as an assembly room and will increase the plant capacity about 100 per cent.

* * *

C F. PEASE CO., Chicago, manufacturer of blueprint machinery and drafting room supplies, has moved its New York sales office and display room from the Grand Central terminal to the seventh floor of the Ashford building, 12 East Forty-fourth street, occupying the entire floor. T. K. Murney, eastern sales manager, is in charge.

* * *

WESTINGHOUSE ELECTRIC & MFG. CO., East Pittsburgh, Pa., has taken an order from the Youngstown Sheet & Tube Co. for electrical equipment for a 44-inch electrically-driven reversing blooming mill for its Campbell works at Youngstown. Control is from the mill pulpit. A feature is a foot-operated master switch which completely controls the reversing motor and allows the operator to control auxiliaries with his hands. The mill replaces a steam-operated mill which has been in use 14 years.

* * *

MOHAWK WATER TREATMENT CO., Cleveland, recently incorporated with $12,000 capital, has started production of its treatment for water in steam boilers, to prevent scale, pitting corrosion, foaming and priming. John Nelisse is president, B. A. Hoffman, secretary-treasurer and N. W. Maher vice president and sales manager.

* * *

FORT PITT SPRING & MFG. CO., with plant at McKees Rocks, Pa., has been sold to interests headed by Ralph H. Tate of Pittsburgh, Henry S. Sherman of Cleveland, and C. H. Collins of New York. The name has been changed to the Fort Pitt Spring Co., the new owners having taken over the plant Nov. 1. William McBride, president of the former company, will retire. The company had $300,000 capital.

* * *

LAURAL MOTORS CORP., Anderson, Ind., plans to manufacture airplane motors in a plant at Waiton and Twenty-fourth streets, formerly occupied by a rubber manufacturing plant and now under option by the company. D. J. DesChamps of New York and Brussels, an aviation engineer, recently was in Anderson conferring with officials. The motor will be of radial type, air-cooled. Mr. DesChamps is a designer of motors.

* * *

KENNEDY VANSAUN CO. of Illinois, with offices in the State Bank building, 120 South LaSalle street, Chicago, has been formed as a subsidiary of the Kennedy-VanSaun Mfg. & Engineering Corp., New York. T. J. Shearer has been appointed manager in charge of the Chicago subsidiary. The company manufactures crushing, mining and cement machinery and pulverized coal equipment.

* * *

COLD METAL PROCESS CO., Youngstown, O., manufacturing shim steel, is enlarging production facilities and arranging for the installation of machines in plants of other manufacturers for production on a royalty basis. One of these machines, for the Trumbull division of the Republic Iron & Steel Co., is nearing completion by the United Engineering & Foundry Co. L. A. Beegly, president of the Standard Slag Co., and associates are the principal interests in the new company.

* * *

VANADIUM-ALLOYS STEEL CO., Latrobe, Pa., will absorb the Colonial Steel Co., Pittsburgh, stockholders having approved the plans as presented. Stock of the Vanadium company will be increased from 120,000 to 210,000 shares, no par value. Part of the 90,000 additional shares will be used for purchase of the Colonial organization. Both companies are manufacturers of tool steel and have a combined book value of more than $8,000,000. No change has been announced in the personnel of either company. The two businesses are to be conducted separately, but sales will be co-ordinated.

* * *

CURTISS-ROBERTSON AIRPLANE MFG. CO., St. Louis, has contracted to supply about 1000 Curtiss-Robin monoplanes to the Curtiss Flying Service Inc., New York, each year for five-year period. The plant is being gradually stepped up to three planes a day, which will enable it to fill the contract. Curtiss Flying Service Inc. has also purchased the output of the Sikorsky Airplane Co. of New Jersey, maker of an amphibian type plane. The output of several other factories will be bought by the company, which plans to merchandise airplanes and spare parts, as well as operate flying schools and intercity aerial taxi service throughout the country.

* * *

RUST ENGINEERING CO., Pittsburgh, has taken contracts recently for a number of furnace installations. Crucible Steel Co. of America has contracted for a five-hole soaking pit at its Park works. American Sheet & Tin Plate Co. has ordered 16 pack furnaces for its plant at Gary, Ind., similar to eight already in use, replacing some of older type. Dominion Foundries & Steel Ltd., Hamilton, Ont., has bought a continuous furnace for heating slab ingots. Steel Co. of Canada Ltd. is installing a recuperative continuous furnace for its plant at Hamilton, Ont., to serve its new continuous mill. American Sheet & Tin Plate Co. is

installing a sheet normalizing furnace at Vandergrift, Pa., 155 feet long and 84 inches wide. The Rust company has completed and put into operation recently two continuous furnaces for the Timken Roller Bearing Co., Canton, O., and a refractory tile recuperator in connection with a continuous furnace at the plant of the Steel Co. of Canada Ltd., Hamilton, Ont.

* * *

LAMSON & SESSIONS CO., Cleveland, will build a bolt and nut plant in North Birmingham, Ala., on a tract of 8½ acres, recently acquired.

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CATERPILLAR TRACTOR CO. OF CALIFORNIA, Leandro, Calif., has acquired the Russell-Grader Mfg. Co., Minneapolis, effective Jan. 10, 1929.

* * *

NIEDRINGHAUS INC., 5939 Natural Bridge street, St. Louis, manufacturer of sheet metal products, has added a metal grave vault manufacturing division.

* * *

FEDERAL PIPE & SUPPLY CO., Chicago, has had plans made for a pipe and fitting plant at 900 South Campbell avenue, on a site 134 x 316 feet recently acquired from the Whitaker-Glessner Co., Wheeling, W. Va.

* * *

MISSISSIPPI IRON CO., Almonte, Que., will shortly open a branch plant at Hull, Que., for the manufacture of farm implements, under the name of the Hull Implement Co. A. K. MacLean, formerly of the Massey-Harris company, will be managing director.

* * *

HOLMES FOUNDRY CO. LTD., Sarnia, Ont., a subsidiary of Holmes Foundry Co., Port Huron, Mich., will reopen its plant about Dec. 1, after 18 months' idleness. The plant will make automobile parts. L. M. Mullholland will be works manager.

* * *

EQUIPMENT MFG. CO. is the name of a consolidation of the W. F. Blanke Can & Mfg. Co., St. Louis, with the Dairy Equipment Co., Kansas City, Kans. Factory and general offices have been moved to 412 Valentine street. O. B. Blanke is vice president and general manager.

* * *

AMERICAN BRIDGE CO. has completed 10 covered all-steel barges for the Carnegie Steel Co. for transportation of finished steel products to southern markets. American Bridge Co. also has delivered the first of nine standard coal-carrying barges to the Union Barge Corp. The company also is launching the first of 30 steel barges ordered by the Mississippi river commission.

* * *

ONTARIO MALLEABLE IRON CO. LTD., Oshawa, Ont., has been merged with the Grinnell Co. of Canada Ltd., Toronto, a subsidiary of the Central Fire Extinguisher Co., Providence, R. I. The new organization will retain the name of the Ontario Malleable Iron Co. and the same lines of manufacture will be continued and the business expanded. The officers of the new company are: Russell Grinnell, president; C. G. Sherman, vice president; L. W. Jones, treasurer; E. W. Shaw, secretary; W. L. Horn, managing director.

* * *

WYATT METAL & BOILER CO., Dallas, Tex., will build a plant at Houston, Tex., for the fabrication of steel plate and metal work. It will have 75,000 square feet of floor space and, with the Dallas plant, provides total floor space of over 175,000 square feet. The Houston plant will be specially equipped for building heavy plate work now required in oil refining practice. Additional special equipment at the Houston plant will include 36-foot bending rolls, plate planers and automatic arc welding machines. These machines will build welded steel pipe, cylinders and tanks in 36-foot lengths from a single plate. Wyatt Metal & Boiler Co. was organized in 1913 with $25,000 capital. The capital stock has grown to $1,000,000. Officers of the company include W. J. Wyatt, president; Raleigh Hortenstine, vice president and general manager; Frank E. Austin and Charles R. Moore, vice presidents; M. F. Leavell, secretary-treasurer; E. P. Dillman, sales manager; and W. B. Van Wart, manager of the Houston plant.

Wheeling Reports Gain

Net earnings of the Wheeling Steel Corp., Wheeling, W. Va., and subsidiaries in the third quarter were $1,408,670. This compares with $1,530,125 in the preceding quarter and with $899,959 in the third quarter of 1927. For the first three quarters of the year earnings were $3,963,010 against $2,748,145 in the corresponding period of 1927.

Republic Earnings Rise

The Republic Iron & Steel Co., Youngstown, O., reports net earnings, after all charges before dividends, for the third quarter at $1,280,775. This compares with $501,992 for the corresponding period of 1927. Earnings for nine months amounted to $2,821,962, compared with $2,534,529 in the like period of one year ago.

Billings & Spencer Plan Is Up Nov. 19

A special meeting of stockholders of the Billings & Spencer Co., maker of tools, forging machinery and forgings, Hartford, Conn., to act upon the proposed plan of reorganization of the company, is set for Nov. 19. The reorganization plant, recently approved by directors, calls for issuance of but one class of stock, preferred stockholders of the present company to receive one share of $10 par for each share of preferred, and both preferred and common stockholders to have the privilege of subscribing at par to company's new stock in proportion of 1½ shares for each share of the present company.

All such subscribers will participate in a stock dividend of one share for each five so subscribed with a resulting net cost per share of $8.33 1/3, it is said. The proposed reorganization contemplates wiping out of the company's bonded and note indebtedness and a substantial increase in its working capital.

David J. Post has been elected chairman of the board and A. H. Deute, vice president and general manager. Frederic C. Billings remains as president and treasurer.

Gray Iron Institute Will Elect Nov. 14

Announcement has been made by the Gray Iron institute, Terminal Tower building, Cleveland, that the first annual meeting of the organization will take place on Wednesday, Nov. 14, at the Cleveland chamber of commerce rooms, fourteenth floor, Terminal Tower building, Cleveland. At this meeting reports of officers will be received, directors elected for the coming year and certain matters of policy determined. A nominating committee has been appointed by the board of directors to present nominations for directors. This committee is composed of the following: Chairman H. J. O'Neil, Western Foundry Co., Chicago; P. C. DeWolfe, Browne & Sharpe Mfg. Co., Providence, R. I.; D. L. Sacks, Louis Sacks Foundry Inc., Newark, N. J.; Harry Cooke, Olney Foundry Co., Philadelphia; and W. F. Bornfleth, Cream City Foundry Co., Milwaukee.

Pig Iron Best October Since 1918

FINAL figures on the production of coke pig iron in the United States for October showed even a larger increase over the September output than was indicated by IRON TRADE REVIEW'S estimate of last week. Complete returns from all operating blast furnaces show a total October production of 3,373,539 gross tons, a daily rate of 108,824 tons, and 196 stacks making iron.

MONTHLY PRODUCTION

	1928	1927	1926	1925
Jan.	2,855,515	3,101,346	3,319,789	3,372,207
Feb.	2,898,668	2,940,604	2,923,850	3,214,067
Mar.	3,199,175	3,482,107	3,458,171	3,571,422
April	3,181,975	3,424,377	3,438,805	3,211,235
May	3,292,790	3,391,067	3,477,820	2,933,907
June	3,082,340	3,089,726	3,232,478	2,679,045
July	3,072,711	2,954,625	3,224,663	2,665,262
Aug.	3,136,995	2,950,674	3,200,723	2,707,171
Sept.	3,063,593	2,782,500	3,163,269	2,725,885
Oct.	3,373,539	2,812,015	3,334,206	3,017,889
Total 10 mos.	31,157,301	30,929,041	32,773,774	30,098,090
Nov.	.....	2,661,863	3,237,992	3,023,257
Dec.	.....	2,698,208	3,089,175	3,249,057
Total	.....	36,289,112	39,100,941	36,370,404

In September, total iron made was 3,063,593 tons, or 309,946 tons less than was turned out in October. October, however, was a one-day longer month than September. Last month, the daily rate was 6704 tons higher than the 102,120-ton rate of September. This increase represented 6.5 per cent. The daily rate proved to be the best for any month since May, 1927, when the figure was 109,388 tons, and the best for any October since the war year 1918 when the rate was 112,335 tons per day.

Nearly all districts made small production gains over the preceding month, but the bulk of the increase was in the state of Pennsylvania, where the total output rose from 979,752 tons to 1,142,805 tons, an increase of 163,053 tons. This, of course, is a reflection of the augmented steel production in the state.

The 196 blast furnaces active on the last day of the month, compared with 194 on Sept. 30. During October, 1 merchant furnace was blown in and 2 blown out or banked. Of the nonmerchant or steelworks class, 11 were blown in and 8 blown out. Of the total active, 40 were merchant and 156 were nonmerchant.

In addition to the furnaces listed on Page 1152 of the Nov. 1 issue of IRON TRADE REVIEW as having been blown in during October, the following resumed operation: In Pennsylvania: Carrie No. 5, Carnegie Steel Co. In Illinois: South Works No. 10, Illinois Steel Co. In Michigan: Benson, Ford Motor Co.

To the furnaces which were blown out the following should be added: In Alabama: Bessemer No. 2, Tennessee Coal, Iron & Railroad Co.

Rate of Operation

(Relation of Production to Capacity)

	1928†	1927*
Oct.	80.1	64.5
Sept.	75.2	65.9
August	74.4	67.6
July	73.2	67.7
June	76.0	73.2
May	78.3	77.7

***Based on coke pig iron capacity of 51,379,400 gross tons as of Dec. 31, 1926. †Based on capacity of 49,605,720 tons as of Dec. 31, 1927. Capacities computed by American Iron and Steel institute.**

AVERAGE DAILY PRODUCTION

	1928	1927	1926	1925	1924
Jan.	92,113	100,043	107,039	108,781	97,273
Feb.	99,954	105,021	104,423	114,788	105,987
Mar.	103,199	112,326	111,554	115,207	111,787
Apr.	106,066	114,146	114,627	107,041	107,537
May	106,219	109,388	112,187	94,642	84,515
June	102,745	102,991	107,749	89,301	67,427
July	99,120	95,311	104,021	85,976	57,531
Aug.	101,193	95,183	103,249	87,328	60,741
Sept.	102,120	92,750	105,442	90,862	68,454
Oct.	108,824	90,710	107,555	97,351	79,419
Nov.	.....	88,728	107,933	100,775	83,832
Dec.	.....	87,039	99,651	104,808	95,367
Ave.	102,155	99,422	107,126	99,645	84,908

DIVISIONS OF PRODUCTION

1927	Merchant	Nonmerchant	Spiegel and ferromanganese
Jan.	745,766	2,355,580	40,330
Feb.	642,804	2,297,800	31,605
March	762,354	2,719,753	35,483
April	735,385	2,688,992	37,657
May	701,582	2,689,485	38,531
June	714,268	2,375,458	39,764
July	736,707	2,217,918	35,768
Aug.	667,104	2,283,570	30,383
Sept.	651,246	2,131,254	26,712
Oct.	688,880	2,123,135	24,763
Nov.	652,237	2,009,626	24,372
Dec.	660,616	2,037,592	27,809
Total	8,358,949	27,930,163	393,177
1928			
Jan.	649,654	2,205,861	32,510
Feb.	579,298	2,319,370	27,376
March	597,106	2,602,069	34,587
April	586,045	2,595,930	33,599
May	596,664	2,696,126	38,466
June	589,127	2,493,213	38,628
July	584,611	2,488,100	42,230
Aug.	563,510	2,573,485	33,585
Sept.	580,344	2,483,249	31,170
Oct.	643,043	2,730,496	33,519.

OCTOBER PIG IRON PRODUCTION

	No. in blast last day of month Oct.	Sept.	—Total tonnage made— Merchant	Nonmerchant	—Totals— October	September
Ohio	43	45	102,740	704,600	807,340	774,149
Pennsylvania	71	64	115,260	1,027,545	1,142,805	979,752
Alabama	18	20	124,176	95,703	219,879	195,453
New York	12	12	79,449	117,876	197,325	169,657
Illinois	16	16	119,263	214,884	334,147	306,674
Colorado	3	3				
Indiana	13	14				
Maryland	5	5	2,102	440,414	442,516	421,559
Virginia	1	1				
Wisconsin	0	0				
Kentucky	2	2				
Massachusetts	1	1				
Tennessee	1	2	48,779	72,650	121,429	117,180
Utah	1	1				
West Virginia	3	3				
Michigan	4	3				
Minnesota	2	2				
Missouri	0	0	36,631	37,948	74,579	66,924
New Jersey	0	0				
Texas	0	0				
Spiegel and ferro—all states	....	....	14,643	18,876	33,519	32,245
Total	196	194	643,043	2,730,496	3,373,539	3,063,593

Ruhr Lockout Affects 250,000

Steel Prices Stronger as German Workers Are Expelled Over Wage Disagreement—Middlesbrough Exports Heaviest of the Year—Deliveries from France Deferred Many Months—Canadian Pacific Places Contract for Liner

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Nov. 6.—(*By Cable*)—A report from IRON TRADE REVIEW'S correspondent at Berlin states the lockout of German steelworks in the Ruhr district is in effect, last-minute efforts to avoid difficulties having failed. Nearly 250,000 workers are out, claiming this to be due to employers' refusal to accede to an arbitration award.

Iron and steel exports from the Middlesbrough district, England, show considerable improvement. The total for manufactured steel in October was 57,801 tons, and of pig iron 8911 tons, the largest in each case for any month so far this year. Cleveland makers complain of competition from Midland producers in the Scottish market. Prices of semifinished steel are firm, due to tight situation on the Continent and the German labor disagreement. The Canadian Pacific has placed a contract for a 40,000-ton liner for the Southampton-Quebec service with John Brown & Co., Clydebank.

A report from Brussels states the Belgian wire rods syndicate has increased prices 25 francs a ton. Other prices are steady, and buying generally has diminished. The French iron and steel markets are brisk. Deliveries of finished steel products are extending, only works well placed being able to ship in three to four months, while in other cases deliveries are offered for not less than seven months.

British Steel Market Holding Recent Advances

Office of IRON TRADE REVIEW.
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., Oct. 26.—Threat of a lockout in the German steel industry has aroused considerable interest in British circles and has been the only feature in a dull week. The unions concerned are demanding a general increase in wages of 15 pfennigs per hour, a request which the employers have categorically refused, offering as a concession only some minor wage readjustments from which a few thousand men would benefit. Thus a lockout is threatened for Nov. 1, and a prolonged conflict would reduce heavily the output of iron and steel of 1928 which otherwise will fall little short of that of the boom year of 1927. Should the wage demands be granted there can be but one result, namely, another increase in steel prices which have already risen twice this year. British interests are watching the situation closely as it will mean greater freedom from competition from outside sources.

Sterling $4.85

Deliveries from France and Belgium have improved slightly and prices are a little easier. Birmingham merchants are able to buy Continental billets at £5 17s 6d ($28.48), delivered, steel bars at £7 5s ($35.16) and iron bars at £7 2s 6d ($34.55). Nut and bolt makers of Staffordshire still make use of these cheap bars both of iron and steel for Staffordshire common iron costs £8 12s 6d ($41.82) to £8 17s 6d ($43.03). Imports into the Tees last week totaled 7330 tons of foreign material.

The manufactured steel trade in the Middlesbrough area confirms the

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Nov. 5	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$16.01	3 6 0*	$15.28	3 3 0	$15.28	3 3 0	$15.76	3 5 0
Basic	15.76	3 5 0	15.28	3 3 0	15.28	3 3 0	15.28	3 3 0
Basic-bessemer	16.98	3 10 0†	14.79	3 1 0	14.79	3 1 0	14.55	3 0 0
Hematite, Phosphorus 0.02-0.05	16.98	3 10 0	22.09	565*	.....	.....	16.98	3 10 0
SEMIFINISHED STEEL								
Billets	$30.31	6 5 0	$24.25	5 0 0	$24.25	5 0 0	$24.25	5 0 0
Wire rods	41.83	8 12 6	29.71	6 2 6	29.71	6 2 6	29.71	6 2 6
FINISHED STEEL								
Standard rails	$37.59	9 15 0	$31.53	6 10 0	$31.53	6 10 0	$31.53	6 10 0
Merchant bars	1.65c	7 12 6	1.35c	6 3 0	1.35c	6 3 0	1.38c	6 5 0
Structural shapes	1.60c	7 7 6	1.12c	5 2 0	1.12c	5 2 0	1.10c	5 0 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.40c	6 7 6	1.40c	6 7 6	1.42c	6 9 0
Sheets, black, 24 gage	2.17c	10 0 0	2.31c	10 10 0	2.31c	10 10 0	2.20c	10 0 0
Sheets, galvanized, 24 gage, corrugated	2.96c	13 12 6	3.01c	13 13 9	3.01c	13 13 9	2.94c	13 7 0
Bands and strips	2.17c	10 0 0	1.38c	6 5 0	1.38c	6 5 0	1.49c	6 15 0
Plain wire, base	2.12c	9 15 0	1.60c	7 5 0	1.60c	7 5 0	1.65c	7 10 0
Galvanized wire, base	2.93c	13 10 0	2.04c	9 5 0	2.04c	9 5 0	2.09c	9 10 0
Wire nails, base	2.38c	11 0 0	1.68c	7 12 6	1.68c	7 12 6	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.43	0 18 3	.....	.....	.....	.....	$ 6.79	1 8 0
*Francs								

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.01	3 6 0	$17.20	440(2)	$16.54	595	$18.58	78
Basic pig iron	15.76	3 5 0	18.57	475(1)	16.54	595	20.96	88
Furnace coke	3.15	0 13 0	5.87	150	5.14	185	5.12	21.50
Billets	30.92	6 7 6	22.09	565	27.38	985	28.83	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.51c	140
Merchant bars	1.68c	7 15 0	1.31c	730	1.36c	1,050	1.52c	141
Shapes	1.71c	7 17 6	1.22c	675	1.24c	95u	1.49c	138
Plates, ship, bridge and tank	1.87c	8 12 6	1.54c	855	1.30c	1,150	1.71c	158
Sheets, black, 24 gage	2.28c	10 10 0	2.92c	1,620	2.47c	1,900	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.98c	13 15 0	3.50c	1,945	3.89c	2,975	3.78c	350
Plain wire	2.12c	9 15 0	1.94c	1,075	2.02c	1,550	2.48c	230
Bands and Strips	2.22c	10 5 0	1.52c	845	1.89c	1,450	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.16) f. o. b. Ferromanganese £21 14s 0d ($105.25) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($72.90) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

scarcity of specifications for shipbuilding material recently mentioned, but has rather more orders for railway companies. Rolling stock builders in various parts of the country, particularly Birmingham and Sheffield, depend to a large extent on orders from abroad. The home railways are pursuing a policy of strict economy and are placing business sparingly.

Lighter steel, such as billets, is in better demand, but impetus given to the trade has not been sufficient to justify the enhanced price charged by some makers. One of the largest producers in South Wales put up the price to £6 7s 6d ($30.91) about a fortnight ago, but this has had the effect of stopping business and this concern has come back to £6 5s ($30.31). Other makers are quoting on a similar level.

The position in pig iron on the Birmingham market was not quite as good yesterday, and business transacted covered comparatively small lots for immediate consumption. Many iron founders have covered requirements to the end of the year. Prices continue firm at £2 17s ($13.81) for Northampton and £3 ($14.55) for Derbyshire, with some Scotch iron coming in at £3 10s ($16.97).

Tin plate mills are operating 75 to 85 per cent of capacity and there are a number of gaps to be filled in order books before the end of the year. The Far East is prominent as a buyer and South America and the Continent have also been inquiring. Shipments of tin plates last week, totaling 147,608 boxes, were 58,012 boxes better than the previous week and stocks at 209,616 boxes were 28,345 boxes lower. An official statement shows that of the 13 million basis boxes produced between January and September by works in the Welsh tin plate conference 70 per cent were exported and 30 per cent consumed in Britain. Prices are steady at 18s ($4.37) to 18s 3d ($4.43), although the lower figure is usually the one upon which sales are based. The official minimum for tinplate bars continues at £6 ($29.10), delivered, as against £5 15s for the foreign bars.

For galvanized sheets £13 10s ($65.46) to £13 15s ($66.67) are the ruling rates whether at Birmingham or Swansea. Some of the makers name January as the earliest delivery date.

Belgian Exports Steady

Brussels, Oct. 8.—(*European Staff Service*)—Exports of steel from Belgium and Luxemburg during July included 53,178 tons of billets, 48,782 tons of plates and sheets, 43,728 tons of structural shapes, and 31,843 tons of wire products, exclusive of nails. The following table gives figures for the first seven months of 1928 as compared with the monthly averages of the three preceding years, in metric tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron	Steel	Pig iron	Steel
1925	27,095	15,860	8,060	242,325
1926	27,505	27,265	13,105	304,075
1927	31,760	27,715	11,350	387,415
1928				
Jan.	37,625	34,357	6,793	289,854
Feb.	40,293	37,481	7,952	401,502
March	43,612	31,294	11,971	458,377
April	36,769	29,203	9,583	325,723
May	36,506	31,971	15,317	338,052
June	44,314	33,793	7,484	382,700
July	42,305	35,409	7,367	344,977

Comptoir Prices Rule in French Steel Market

Office of IRON TRADE REVIEW,
9 Rue de Londres

PARIS, Oct. 26.—(*European Staff Service*)—The topic of the past week has been the meetings of various comptoirs. Decisions arrived at are always important, as prices of commodities sold by these selling organizations rule the prices of most metallurgical products. No change has been made in the price of wire rod, which remains at 825 francs f.o.t. Thionville. This branch of the industry is satisfactory and every work endeavors to realize its maximum output. Demand for wire rod at present is heavy. The first reason for this is that new buildings being constructed are mostly of reinforced concrete, which requires a heavy tonnage of rods. The second reason is equally important; German members of the international wire rod syndicate insist that they will renew the present agreement if an international wire products syndicate is quickly organized; up to the present time, no result has been obtained, but negotiations are going on and it is expected that within a few months an agreement will be signed between wire rod transformers; consequently, these firms are trying to draw as much wire rod as they can, to obtain the heaviest possible production quota in the future comptoir. Renewal of the present international wire rod comptoir has been discussed, and this matter will be settled at the next international meeting.

The situation of the comptoir of A-products, which fixes the prices of semifinished steel and structural steel, is not so satisfactory, especially in semiproducts. This comptoir encounters many difficulties in placing the orders it receives. This is explained by the fact that most works are transforming into bars or shapes all the metal they produce. However, members of this organization have decided to increase the price of semiproducts by 25 francs (98.00c) per metric ton, whereas the price of plates is not below 1125 francs f.o.t. northern works. The price of beams, normal profile, is unchanged.

Meetings have been held between metallurgists and coal mine owners to discuss a demand presented by the latter to increase the price of coke by 5 francs. This proposition has been granted. Sales of finished material remain heavy and prices are steady at 720 to 760 francs. At the last meeting of the Brussels iron and steel exchange, orders for bars originating from the Pacific coast of the United States were noted. This fact was satisfactorily commented upon, as American merchants have not sent inquiries over for a long time.

Belgian Export Prices Seen to Be at Zenith

BRUSSELS, Oct. 26.—(*European Staff Service*)—Iron and steel export prices in the Belgian market apparently have reached their highest point, and for the past two or three weeks quotations have been slightly oscillating. On the whole, quotations are a little below the level at the end of September. Merchant bars are more easily obtainable, and at the same time consumers do not seem so disposed to order in large quantities. There is, however, a fair total of business, because there still are certain requirements to meet, with the result that a number of firm orders are passed.

For some time negotiations have been under way with a view to organizing a sales syndicate for coal and coke. At present about 90 per cent of coke producers have endorsed the plan. With regard to coal, unanimous approval has been reached in the districts of Borinage, the center, and Campaine in the Charleroi district. It is expected that before long there will be two syndicates: One for coke and coking coal, and one for industrial coal, the latter being composed of a number of regional associations.

Franc—2.78c

Foundry pig iron is held at about £6 3s ($29.75) f.o.b. Antwerp, and £6 ($29.05) for basic bessemer pig iron. Semifinished steel continues scarce, and 2-inch billets fetch £5 1s ($24.40). German offers are reported. Sheet bars are quoted at between £5 1s ($24.40) and £5 2s ($24.65). The price of beams remains at £5 2s 6d ($24.85) for normal sizes and £5 5s ($25.40) for British sizes. Merchant bars now are firm at £6 3s ($29.80), after having reached £6 4s ($30) and dropped to £6 2s ($29.50). Three-millimeter sheets are quoted at £6 10s 6d ($31.75). It is reported that the Germans are obtaining orders in the Liege district for open-hearth steel for mechanical construction. This steel has a tensile strength of 55 to 65 kilos per square millimeter (78,228 to 92,451 pounds per square inch), and is sold at 1400 Belgian francs ($38.75), delivered Liege, duty paid.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

WASHINGTON—District of Columbia, P. O. Dougherty, engineering department, District building, plans the remodeling of a power plant at Gallinger hospital, Nineteenth and Massachusetts avenue southeast.

BALTIMORE—A wire mill will be erected here by the Western Electric Co., Chicago, on recently-purchased property. Plans are in process of completion. This company has recently leased from the National Carbon Co. Inc. the plant of the Manhattan Electric Co. on Johnston avenue, in Jersey City, N. J. It is understood it will be used for warehousing purposes.

ROCKLAND, MASS.—W. Underwood Co., 95 Walnut street, Watertown, Mass., has awarded the general contract for a 1-story power plant to Lowell-Whipple Corp., 44 Portland street, Worcester, Mass.

NEWARK, N. J.—Property has been purchased by the Kolster Radio Corp. for further expansion. The building on the property will afford double the space now employed at the plant on Mt. Pleasant avenue.

TRENTON, N. J.—DeLaevo Steam Boiler Co. has awarded the contract for a 1-story assembly building, 70 x 215 feet, to J. A. Ferguson Co., 152 Market avenue.

BUFFALO—American Mond Nickel Co. has started work on an addition to double the capacity of its Hyde City, Pa., plant which will add 125,000 square feet of floor space to its buildings there.

DUNKIRK, N. Y.—Dunkirk Radiator Co. plans the construction of a plant for the production of radiators and boilers. Building work will start at once.

NEW YORK—Buffalo, Rochester & Pittsburgh railroad, 36 Wall street, New York, plans the construction of a new car repair shop and is considering several locations.

HUNTINGTON, PA.—J. C. Blair hospital plans the construction of a 1-story boiler house to be built on the hospital grounds. J. H. Wickersham, 33 North Duke street, Lancaster, Pa., is architect.

PHILADELPHIA—The Cramp-Morris Industries Inc., Richmond and Norris streets, manufacturer of pumps and other equipment, has placed 100 tons of structural steel for a plant addition.

PHILADELPHIA—Pennsylvania railroad, with main headquarters at Broad street station, Philadelphia, announces plans for electrifying 325 miles of line and 1300 miles of track in eight years. All work on the project, estimated to cost $100,000,000, will be done by contractors.

TARENTUM, PA.—Aluminum Co. of America is doubling its Arnold seal plant, enlarging its plant at Logan's Ferry, and making other extensions to its manufacturing facilities in this district.

Resale Equipment News

MACHINERY and equipment plant of the Detroit Shipbuilding Co., foot of Orleans street, Detroit, will be sold at auction in liquidation, Nov. 22 and 23, by Samuel T. Freeman & Co. Included in the sale are lathes, slotters, planers up to 16 feet, radial drills, single and multiple spindle drill presses, boring mills, bolt cutter, screw machines, grinders, punch and shear, hydraulic riveters, hydraulic upsetter, bending rolls, air compressors, steam hammer, shears and punches, pipe bending, flanging and threading machines, rotary shears, woodworking machinery, transformers and motors, 17 electric cranes, spans 30 to 60 feet, and office furniture and equipment.

* * *

Announcement has been made that all the properties of the Joplin & Pittsburg Railway Co., which operates some 75 miles of road between Joplin, Mo., and Mulberry, Kans., will be offered for sale to the highest bidder at an auction at Pittsburg, Kans., on Dec. 1. M. H. McClean is receiver of the road, and John F. Laying, general manager.

* * *

Property and assets of the Bollinger-Andrews Construction Co., Verona, Pa., will be sold at receivers' sale, Nov. 15. The sale includes two plots of land, with buildings, office building, pattern shop, structural shops, stock yard, crane runway and all equipment in them. Stocks of beams, channels and other structural steel, bolts and nuts, reinforcing rods and other miscellaneous material.

* * *

The machine tool equipment of the Bucyrus Road Machine Co., Bucyrus, O., formerly the Carroll Foundry & Machine Co., was sold at auction, Oct. 30, by the Industrial Plants Corp. The grounds and buildings had been sold previously to Charles F. Michael, president, Ohio Locomotive Crane Co., Bucyrus, O., who will equip them for gray iron foundry work and for the manufacture of road building equipment.

Sales Calendar

Nov. 14.—Receivers' sale in equity of real estate, equipment and supplies of Eagan Johnson Steel & Iron Co., Eddystone, Pa.

Nov. 15—Bollinger-Andrews Construction Co. property for sale on premises, Verona, Pa.

Nov. 22-23—Liquidation sale of machinery and equipment of Detroit Shipbuilding Co., Detroit.

Western States

LOS ANGELES—Bach Aircraft Corp. has completed working plans for its airplane manufacturing plant. It is to be 100 x 200 feet, located in the Metropolitan airport.

LOS ANGELES—Los Angeles Chemical Co., 2200 Santa Fe avenue, plans the installation of power equipment in its proposed new plant at South Gate.

ALAMOSA, COLO.—Public Service Co. of Colorado, Denver, plans the construction of a new steam operated electric power plant here.

GREAT FALLS, MONT.—A. N. Eaton Metal Products Co. will establish a branch plant here to be located in a 2-story building at 118 First avenue. Changes in the building and the company's equipment will begin immediately.

CENTRALIA, WASH.—City officials have

(*Continued on Page* 1228)

Machinery

Good Selling Rate Continues Into November Without Interruption—Widely Scattered Industrial Inquiry Remains a Market Feature

WITH the exception of eastern territory, activity in the machine tool and shop equipment markets, opens up at about the same rate in November that closed it in October. In the East, pre-election influences appear to have slowed up sales momentarily, but sellers feel confident of improved business within the next two weeks. In the Pittsburgh district, Westinghouse Electric & Mfg. Co. has practically all of its fourth quarter list yet to place. Few of the 30 to 40 tools on the Norfolk & Western list are expected to go to Pittsburgh dealers. In the Chicago area a gasket manufacturer purchased 50 punch presses, several drills and other tools. Miscellaneous inquiry continues good with the carryover of orders the best for any month this year.

New York, Nov. 6.—While inquiry has held up well, machine tool buying the past few days has been light, apparently affected by pre-election influences. Sellers generally look for improved business within the next two weeks. These interests in most cases report that October was under September in point of buying but that business was far from dull. Of all the various major equipment lines, cranes appear to be moving the most slowly. Sellers have been looking for improvement for some time, but so far business here has failed to meet expectations.

Worcester, Mass., Nov. 6.—Demand for machine tools is holding well up to recent brisk schedules and covers a wide range of units. Demand from textile makers continues to be the weak spot, but some improvement is noted in this branch by one manufacturer. Machine tool buying by the automotive industry continues steady with a fair list of units placed for the expected increase in automobile production within the next few weeks. The radio and electrical fields are also taking a number of tools steadily. Railroad business in New England is sluggish. Machine shop trade is holding up well and there is more inquiry and orders from the metalworking trades. While there is an absence of large lists, the total volume moving, holds well to the September output and some machine tool makers are working extra shifts. The call for production machinery leads. Grinding tools continue to hold the pace of several months. Export inquiry is also a feature in the New England market. Small tools are in brisk demand and shipments are generally close to production schedules.

Pittsburgh, Nov. 6.—Machinery sellers are receiving a fairly steady run of orders, although demand is spotty in regard to the list of buyers. Inquiry is well maintained although not exceptionally heavy. Westinghouse Electric & Mfg. Co. has practically all of the tools on its fourth quarter list still to place. Dealers look for but few of the 30 to 40 tools on the current inquiry of the Norfolk & Western railroad to be placed in this district. Bids closed on this list several days ago.

Chicago, Nov. 6.—Sales are active in drills, lathes, punch presses and sheet metalworking equipment. The opening of November finds a continuance of the widely scattered industrial inquiry and sales of the past two months, with several inquiries still pending from tractor builders. Farm implement activity has subsided after an active summer and autumn season. A gasket manufacturer has purchased 50 punch presses, several 6-foot radial drills and several other tools. A Milwaukee manufacturer has purchased several ball bearing drills. Nash Motors Co. has added several new tools to its Milwaukee plant. Chicago, Milwaukee, St. Paul & Pacific railroad has purchased three shapers and a radial drill, practically completing this road's purchases for the year. Among orders just closed were for a number of friction saws and electric welding equipment. Several dealers expect November will be the heaviest month this year in billing back orders. The carryover of orders from October generally was the heaviest of the year. Used tool inquiry is in large volume.

Cleveland, Nov. 6.—Activity in the equipment market moved from October into November at an unchanged rate, giving confidence to dealers and manufacturers that another good month is just ahead. Inquiries are numerous from wide sources, although at the moment the greater Cleveland area is buying more substantially than it has in months. A good share of the going business originates in the automotive industry, particularly from Detroit. Several parts manufacturers have been awaiting action of the Ford Motor Co. on the enlargement of contracts for the manufacture of hydraulic shock absorbers. Now it is understood that the company is tooling up its Green Island plant in New York for the manufacture of absorbers and that Jan. 1 will see an output of sufficient quantities that an assembly of 10,000 cars per day will be attained.

Pickands, Mather & Co., Cleveland, resumed underground operations at its Baltic mine at Iron River, Mich., Nov. 1, after a shutdown since last April.

CRANE ORDERS PLACED

Two 6-ton truck cranes for D. C. Serber, 114 West Fourteenth street, New York; to Universal Crane Co.

Standard Locomotive crane for Ulen & Co., 120 Broadway, New York; reported placed with Industrial Brownhoist Co.

CRANE ORDERS PENDING

Six 5 or 7½-ton electric cranes, for the Waterfront Service Co., Brooklyn, previously noted as pending, bids to be opened Nov. 7, with action expected within two weeks. Moores & Dunford, New York, engineers.

Castings Orders Gain

Washington, Nov. 6.—Commercial steel castings bookings in September continued to gain, according to department of commerce statistics. Following are monthly comparisons:

	BOOKINGS		PRODUCTION	
Total	†Total net tons	Railway specialties	†Total net tons	Railway specialties
1926	1,035,778	404,945	1,135,955	427,016
1927				
Sept.	52,351	18,396	70,024	25,618
Total, 9 mos.	727,314	300,727	784,977	310,200
Oct.	51,748	16,625	62,409	21,947
Nov.	62,683	27,639	58,997	19,146
Dec.	76,953	39,112	58,220	19,388
Total	918,698	384,103	964,603	370,654
1928				
Jan.	91,072	41,276	74,082	28,714
Feb.	90,677	41,096	87,323	37,719
March	83,285	30,992	93,521	38,448
April	83,737	32,810	85,669	32,619
May	86,414	34,995	92,948	36,599
June	71,745	22,597	91,387	30,742
July	66,667	20,483	78,324	27,501
Aug.	*81,452	25,171	*87,320	27,157
Sept.	82,173	35,324	75,199	25,811
Total 9 mos.	737,222	284,654	765,773	284,810

†For tonnage of miscellaneous castings deduct Railway Specialties from this total.
*Revised.

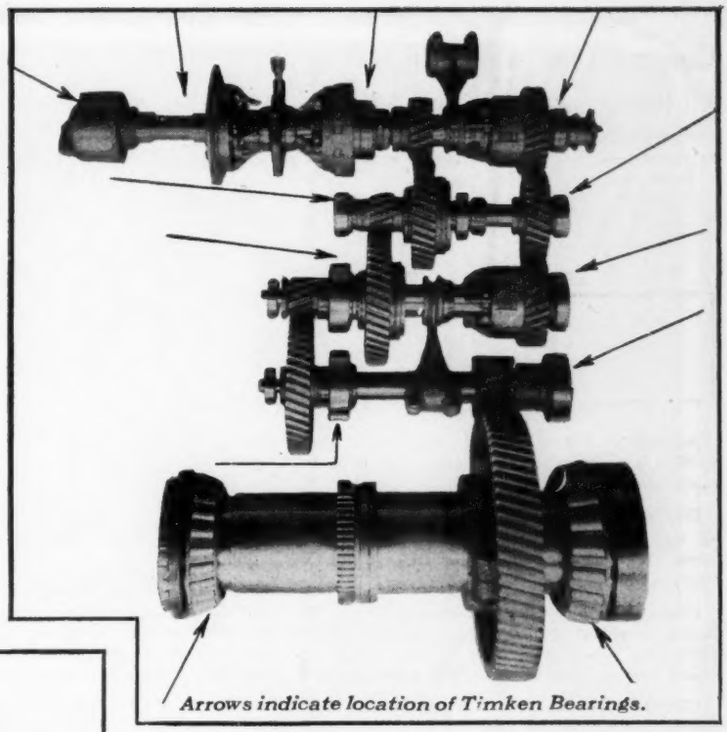
Inland Steel Net Gain

Net profits of the Inland Steel Co., Chicago, for the third quarter amounted to $2,089,439, after all charges including depreciation and federal taxes. This compared with $1,244,021 for the corresponding period of 1927. Net income for the first nine months was $6,931,161, compared with $5,590,041 for the corresponding period of 1927. The comparative income account for the third quarter follows:

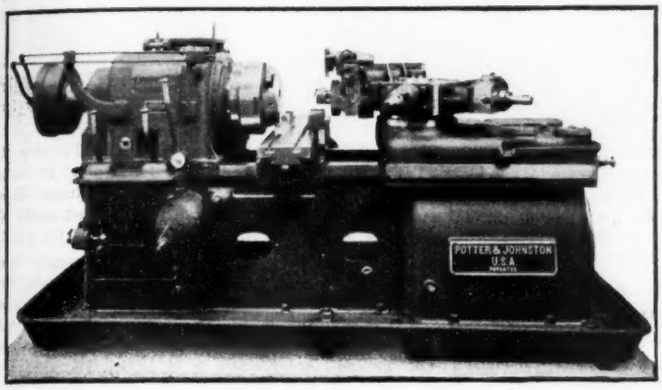
	Quarter ended Sept. 30, 1928	Quarter ended Sept. 30, 1927
Operating income	$3,212,295	$2,224,775
Depreciation and depletion	659,356	629,006
Interest	337,500	170,687
Federal taxes (estimated)	126,000	181,000
Net profits	2,089,439	1,244,021

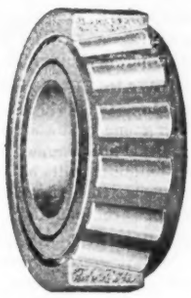
The Cleveland Enameling & Mfg. Co., Quincy avenue and Nickel Plate railroad, Cleveland, expects to occupy its new plant about Jan. 1.

15 Timken Bearings Preserve the Accuracy and Prolong the Service of this Potter & Johnston Power-Flex Automatic



Arrows indicate location of Timken Bearings.





As hours extend into days and days lengthen into years—how about continued accuracy, preserved rigidity and precision?

Timken Bearings—15 of them—answer that question in the Potter & Johnston Automatic—answer it with their ability to keep step with this fast flying production program—going on and on, transmitting power with less friction, using little lubricant, standing thrust and shock and speed and continually withstanding wear.

There are reasons—good reasons—Timken reasons—found in full radial-thrust capacity, Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken electric steel.

That is why prominent manufacturers are equipping with Timken Bearings and users are taking "Timken-Equipped" as an indication of continued service.

THE TIMKEN ROLLER BEARING COMPANY
C A N T O N , O H I O

TIMKEN
Tapered
ROLLER BEARINGS

Construction and Enterprise

(*Continued from Page* 1225)

executed a lease for 99 years granting a site to George L. Barnes, who proposes to erect a brass foundry.

OLYMPIA, WASH.—Olympia Veneer Co. is erecting a building which is to house a power plant.

OLYMPIA, WASH.—Voters will pass on a proposal to issue $225,000 utility bonds to improve and extend the city water system at an election Nov. 19.

SEATTLE—Isaacson Iron Works has completed plans for construction of a crane runway at its local plant, 2135 East Marginal Way.

SEATTLE—City council has authorized vacation of Twenty-sixth avenue southwest on petition of the Pacific Coast Steel Co. which has acquired property in anticipation of future expansion.

East Central

AURORA, ILL.—All-Steel Equipment Co., Griffith avenue, plans the construction of a 1-story plant addition.

CHICAGO—Pressed Steel Car Co. has awarded the general contract for a 1-story boiler house, 72 x 82 feet, to Carnegie Co., 6 North Clark street.

CHICAGO—Dallas Brass & Copper Co., C. D. Dallas president, 820 Orleans street, contemplates the construction of a building on West Grand avenue. The architect is not yet selected.

CHICAGO—Foote Gear Works Inc., 213 Curtis street, will remodel the 1 and 2-story building on property which it has purchased recently and will occupy it for a new plant.

CHICAGO—International Steel & Iron Co., 3136 West Fifty-first street, has purchased property in the Kenwood manufacturing district, where it will build a 1-story warehouse.

CHICAGO—Federal Pipe & Supply Co. is having a pipe and fitting plant built at 900 South Campbell avenue. The property is 134 x 316 feet and adjoins the present plant of the Federal company.

CHICAGO—Stewart-Warner Speedometer Corp., George Warner, 1812 Diversey boulevard, purchasing agent, plans the construction of a 12-story plant. L. B. Hallberg & Co., 116 South Michigan avenue, are architects.

CICERO, ILL.—Hurley Machine Co., West Twenty-second street and South Fifty-fourth avenue, has awarded the contract for a 2-story plant addition, 80 x 400 feet, to E. C. Archibald & Co., 111 West Washington street, Chicago.

NORTHBROOK, ILL.—North Shore Airport, 105 West Adams street, Chicago, plans the construction of an airport here.

ROCKFORD, ILL.—Eastwing Mfg. Co., 2031 Ninth street, manufacturer of tools, plans the installation of power equipment in connection with the rebuilding of that portion of its plant damaged in the recent tornado.

EVANSVILLE, IND.—Advance Stove Works was damaged in a recent fire.

INDIANAPOLIS—Acme Tool & Machine Co., 924 Ft. Wayne avenue, plans the construction of a 1-story plant, 40 x 115 feet, to be built at Beville avenue and East Washington street.

ALGONAC, MICH.—Monnier Bros. & Co., manufacturer of boat hoists, plans the purchase of machinery for its proposed new plant. (Noted Oct. 18).

BUCHANAN, MICH.—Clark Equipment Co. has started work on its plant addition at Berrien Springs, to be U-shaped, each wing to be 50 x 250 feet. A separate building is under construction to house the boilers for the heating plant.

DETROIT—City of Detroit, department of public works, plans the construction of a boiler house at the airport. P. A. Fellows, city hall, is engineer.

DETROIT—Detroit Gear & Machine Co., Woodbridge street, has awarded the general contract for a 4-story gear plant, 70 x 150 feet, to Stokes & Whittingham, Penobscot building.

DETROIT—Wood Hydraulic Hoist & Body Co., 7924 Riopelle street, has awarded the general contract for a 1-story plant, 50 x 350 feet, to Otto Randolph Inc., 53 West Jackson boulevard, Chicago. (Noted Oct. 25.)

L'ANSE, MICH.—Wisconsin-Michigan Power Co., subsidiary of North America Edison Co., 60 Broadway, New York, plans the construction of a hydroelectric plant here.

AKRON, O.—Goodyear-Zeppelin Corp., W. C. Young, East Market street, manager, will build its Zeppelin manufacturing plant in this city. The exact site for the plant is not decided on yet. W. Watson & Associates, 4614 Prospect avenue, Cleveland, are architects.

CINCINNATI—Ohio Pattern Works & Foundry Co. has awarded the general contract for a 4-story and basement addition.

CLEVELAND—Fire damaged the enameling department of the Jordan Motor Co., 1070 East 152nd street, following an explosion Nov. 2. Plant will be restored at once.

CLEVELAND—Chase Brass & Copper Co., Waterbury, Conn., with Cleveland sales office at 5005 Superior avenue, plans the construction of a midwestern rod, tube and sheet mill at Cleveland.

CLEVELAND—Guarantee Specialty Mfg. Co., 5100 Superior avenue, has purchased a site with two buildings, which are to be enlarged. The company, of which Richard H. Wright is president, manufactures dies.

CLEVELAND—Board of education, F. G. Hogan, East Sixth and Rockwell streets, director, will receive bids until noon Nov. 12 for a 1 and 2-story foundry addition. (Noted Sept. 6.)

KENT, O.—Kent State Normal college has had revised plans drawn for a power house. Ronan & Ingleson, 1614 North High street, Columbus, O., are architects.

MANSFIELD, O.—Mansfield Structural & Erecting Co. is erecting a plant, 1 and 2 stories, 130 x 200 feet.

TOLEDO, O.—Doehler Die Casting Co., H. H. Doehler president, Smead and Prospect streets, has awarded the general contract for a 1-story plant addition to A. Bentley & Sons Co., 201 Belmont avenue.

WARREN, O.—Aetna Engineering & Foundry Co. plans to rebuild its plant damaged by fire recently, and will receive bids shortly for the work.

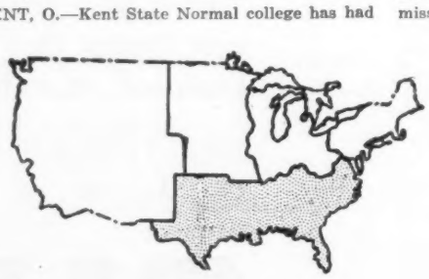
WHEELING, W. VA.—Centre Foundry & Machine Co. plans to enlarge its plant at South Warwood to care for increasing business. It is planned to build on addition 100 feet south of the present plant, the same width as the plant.

MENASHA, WIS.—City of Menasha has awarded contracts for additional equipment for the water and light plant. A diesel oil engine has been purchased from the MacIntosh-Seymour Co., Auburn, N. Y. Generators will be furnished by the Ideal Electric & Mfg. Co., Mansfield, O., and the switchboard by the Westinghouse Electric & Mfg. Co.

MILWAUKEE—Sivyer Steel Casting Co. is completing a foundry addition, 46 x 52 feet, and a power house, 70 x 70 feet.

MILWAUKEE—National Enameling & Stamping Co., 819 St. Paul avenue, is rebuilding one of its structures at Twelfth street and St. Paul avenue, into a production unit. The building will be 57 x 125 feet, 2-story. Architects Siebert & Kegler, 230 Wisconsin avenue, are handling the work.

MILWAUKEE—Bids will be asked soon by the department of public works for the construction of the new municipal testing laboratory, 80 x 80 feet, 2-story, at Vliet and Forty-seventh streets. Plans are by C. E. Malig, city architect. R. E. Stoelting is commissioner of public works.



Southern States

BIRMINGHAM, ALA.—Alabama Fabricating Co. has leased a site in Birmingham on which will be erected at once a steel fabricating works.

TALLADEGA, ALA.—Bemis Bros. Bag Co., 601 South Fourth street, St. Louis, plans the construction of a 1-story boiler house, 49 x 50 feet, and other mechanical units, here.

WALDO, ARK.—Council plans the installation of pumping machinery and auxiliary equipment in connection with the municipal waterworks and sewage disposal plant.

JACKSONVILLE, FLA.—City of Jacksonville has awarded the contract for a municipal garage and machine shop to Jackson Finance

(*Continued on Page* 1230)

The New No. 999 Rivet Buster

with the special cutting chisel and retainer

This new Rivet Buster is easy to hold and is very fast cutting. A specially designed retainer permits the use of a strong, lightweight chisel, so that maximum power is obtained on the cutting edge. In addition, the chisels are much stronger than those of older design. A knob on the upper end of the chisel keeps it from being shot out of the hammer.

Size 999 Rivet Buster for rivets up to ¾".

Other Ingersoll-Rand tools are:

Riveters
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Hoists (7 sizes; capacities, 500 to 20,000 lbs.)

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Ingersoll-Rand

Construction and Enterprise

(*Continued from Page* 1228)

Co. (Noted Sept. 27.)

ATLANTA, GA.—Work will start immediately on the rebuilding of the damaged departments of the Atlanta Plow Works, which suffered in a recent fire. (Noted Nov. 1.)

OAKDALE, LA.—Louisiana Public Utilities Co., Lafayette, La., plans to rebuild the part of its generating plant burned in a fire Oct. 1.

GREENVILLE, S. C.—Hampton Smith has organized a company to manufacture textile machinery and supplies and will locate a plant near here. No report of the company's capitalization has been made.

FORT WORTH, TEX.—Texas-Louisiana Power Co., which was recently acquired by General Waterworks & Electric Corp., New York, plans improvements under new ownership in several properties in Texas, New Mexico, Louisiana and Oklahoma.

HOUSTON, TEX.—Shell Pipe Line Co., subsidiary Royal Dutch-Shell oil interests, is contemplating electrically driven pump station equipment on its 460-mile 10-inch line to be built from McCamey, Tex., to Houston. A refinery will likely be constructed at Houston. C. B. Singleton, Shell building, St. Louis, is purchasing agent.

IRAAN, TEX.—West Texas Engineering Co. has changed its name to Westex Machine & Tool Co. and increased capital stock from $10,000 to $20,000 to provide for additions.

WICHITA FALLS, TEX.—American Battery Products Corp. plans the construction of a battery plant.

West Central

DAVENPORT, IOWA—Blackhawk Foundry & Machine Co. has acquired land adjacent to its plant for future development.

MARATHON, IOWA—The mayor and city council are considering construction of a municipal electric power plant.

KANSAS CITY, MO.—Eagle Aircraft Co., 2800 East Thirteenth street, has awarded the general contract for a 1-story airplane manufacturing plant to W. K. Martin, 423 Dwight building, Kansas City. (Noted Oct. 25.)

ST. LOUIS—American Steel Foundries, East St. Louis, Ill., plans addition to its plant for manufacture of a general line of steel castings.

ST. LOUIS—Nelson Mfg. Co., 928 Chestnut street, plans an addition, 150 x 257 feet.

ST. LOUIS—Atlas Tool & Mfg. Co., 5707 Manchester street, plans a 1-story addition, 60 x 100 feet.

ST. LOUIS—Wagner Electric Co., 6400 Plymouth building, plans the construction of a 1-story transformer plant, 120 x 300 feet. Condon & Post, 53 West Jackson boulevard, Chicago, are architects for the project.

ST. LOUIS—Empire District Electric Co. will construct and operate a dam and hydroelectric power plant on White river at Table Rock, Mo.

CALGARY, ALTA.—Regal Oil Refining Co. Ltd., has awarded contract to the Foster Construction Co., 918 Eighth avenue west, for the construction of an oil refining plant and pump house on Manchester street. Buildings to be 1 story, 42 x 60 feet and 18 x 24 feet, respectively.

VANCOUVER, B. C.—Restmore Mfg. Co. Ltd., 1000 Parker street, manufacturer of woven wire springs, furniture, etc., has let contract to the E. J. Ryan Contracting Co. for the erection of an addition to its factory here. Building to be 4 story, 33 x 260 feet. Architect is J. E. McKenzie, 5 Fairfield building.

WINDSOR, N. S.—Avon River Power Co. has acquired the undertaking of the Stewiacke Electric Light & Power Co. here and plans to construct and install a plant at Falls River, N. S., for supplying power to the municipalities in the district. The proposed plant will have an installed capacity of 500 horsepower.

Recent Incorporations

CHICAGO—Klemm Automotive Products Co., 1445 West Austin avenue, has been incorporated with $20,000 capital, to manufacture automotive products by E. Richard Klemm Jr., P. E. Klemm, and George E. Rubey. Louis J. Durocher, 21 North LaSalle street, is correspondent.

DWIGHT, ILL.—Spencer Mfg. Co. has been incorporated with $100,000 stock and 6000 shares no par value to manufacture farm implements and structural steel fabrications, and do foundry and machine work, by W. P. Johnson, P. A. Gibbons and Edward Johnson. P. A. Gibbons, Pontiac, Ill., is correspondent.

INDIANAPOLIS—L. S. Guetti Tool Co. has been incorporated with $35,000 capital and 1750 shares no par value to manufacture tools, gages and machinery, by L. S. Guetti, R. M. Guetti and Henry Maroni.

ANDOVER, MASS.—M. Rudolf Jahr Inc. has been incorporated with 250 shares no par value stock to manufacture, import and deal in textile machinery, apparatus, etc., by Fritz Ostherr, 215 Haverhill street.

BOSTON—Boston Aero-Marine Mfg. Corp. has been incorporated with $550,000 capital to manufacture airplanes, water craft, etc., by Armin DeMuth, 80 Federal street.

BOSTON—American Fish Machinery Co. has been incorporated with 500 shares no par value stock to manufacture and deal in machinery, equipment, etc., by Daniel J. Webb, 833 Exchange building.

FICHBURG, MASS.—Custom Auto Body & Welding Co. has been incorporated with $12,000 capital to engage in a general welding and metalworking business by August Pekkanen, Fitchburg.

New Incorporations In Separate Listing

AS NEWS of the incorporation of a concern in the metalworking field is a direct lead to a prospective buyer of various lines of products included in the field of IRON TRADE REVIEW, *notice of such incorporations, as received from various secretaries of state, are being segregated from other news in the Construction and Enterprise department. This makes reference easier for those who regard these leads as more important than others. The arrangement is alphabetical by states.*

FITCHBURG, MASS.—Leominster Airport Inc. has been incorporated with $100,000 capital to manufacture all types of air craft, equipment, accessories, etc., by S. Wesley Haynes, Leominster.

LOWELL, MASS.—Steel Refrigerator Co. has been incorporated with 400 preferred shares and 500 shares no par value stock to manufacture refrigerators and boxes or units from steel or other materials, by Quincy I. Abrams, 131 Fuller street, Brookline, Mass.

SOMERVILLE, MASS.—P. J.Sullivan Inc. has been incorporated with $10,000 capital to manufacture and deal in barrels, kegs, machinery and appliances, by Sylvester J. Sullivan, 8 Hamlet street, Somerville.

SPRINGFIELD, MASS.—J. W. Novak Inc. has been incorporated with 100 shares no par value stock to manufacture electric motors, dynamos, etc., by Jonas B. Heit, 876 Chestnut street, Springfield.

SPRINGFIELD, MASS.—Balanstat Corp. has been incorporated with $50,000 capital to manufacture mechanical devices to control and regulate heat by H. J. Smith, 25 Weaver street, Springfield.

DETROIT—Machinery Clearing House of Detroit, 225 Curtis building, has been incorporated with $10,000 capital to deal in and appraise machinery, machine tools and equipment, by John L. Whitehead, Ella B. Whitehead and C.

(*Concluded on Page* 1232)

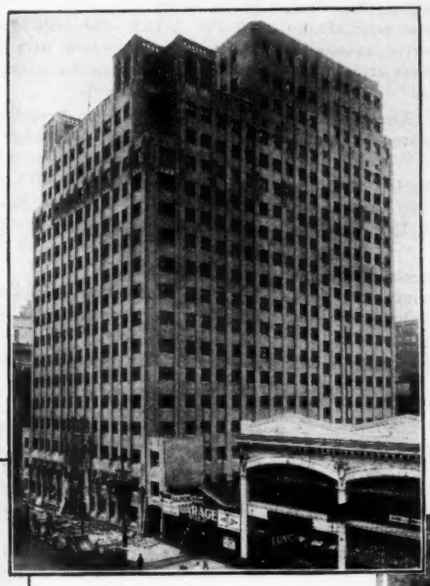
In PHILADELPHIA

These buildings and many others in Philadelphia have Bethlehem Wide-Flange Structural Shapes, commonly known as Bethlehem Sections, in their steel framework.

When Bethlehem Sections were introduced, years ago, architects and contractors everywhere adopted them, immediately recognizing their advantages of great strength and economy in weight and cost of fabrication. Bethlehem Sections are not an innovation. They have long been used, in structures of all sizes and types. Many of the finest buildings in the world have steel frameworks of Bethlehem Sections.

Mastbaum Theatre

Office Building in West Washington Square



Above:
Insurance Company of North America Building

Right:
Mitten Building and Fox Locust Theatre

Below:
Liberty Title and Trust Company Building

Above:
Hahnemann Hospital Annex

Right:
Packard Building

With the introduction recently of the new 33- and 36-inch Wide-Flange Structural Shapes, Bethlehem broadened the utility of this line of famous Sections.

BETHLEHEM STEEL COMPANY

General Offices: Bethlehem, Pa.

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Buffalo, Pittsburgh, Cleveland, Cincinnati, Chicago, Detroit, St. Louis, San Francisco, Los Angeles, Portland, Seattle, Honolulu

Bethlehem Steel Export Corporation, New York
Sole Exporter of our Commercial Products

BETHLEHEM
Wide-Flange
STRUCTURAL SHAPES

New Construction and Enterprise

Recent Incorporations

(*Concluded from Page* 1230)

Edmund Fales, Highland Park, Mich.

DETROIT—Michigan Burglar Alarm System has been incorporated with $8000 capital to manufacture burglar alarm system and devices, by Jerry J. Dvorak, Harry H. Wallner and William Rose, 13517 Cherrylawn street.

DETROIT—Detroit Electric Specialty Co., 836 Dime Bank building, has been incorporated to conduct a general manufacturing business, with $50,000 capital, by Claude C. Fritz, Lansing; Retta D. Fritz, C. W. Hatfield, Detroit.

DETROIT—Consolidated Electrical Industries Inc. has been incorporated with 500,000 shares no par value to manufacture electric water heaters, by Bert W. Jackson, 1301 First National Bank building, Ellis W. Torrey and George H. Tuger.

DETROIT—Jefferson Tool Co., 1238 Mt. Elliott, has been incorporated with $10,000 capital to manufacture machinery and appliances by Thomas Wyatt, 4459 Bewick street, Lillian Wyatt and Thomas Aldridge.

MONROE, MICH.—Mead Machine Co. Inc., Union street, has been incorporated with $25,000 capital to manufacture automotive accessories by George E. Mead, 529 East Sixth street, Earl D. Biedelman and Karl F. Finzel.

SEWARD, NEBR.—Sunshine Electric Light & Power Co. has been incorporated by W. H. Moffitt and George Krim.

NEWARK, N. J.—Metals Casting Inc. has been incorporated with $125,000 capital to manufacture castings by Fast & Fast, Newark, attorneys.

NEWARK, N. J.—Rollo Composition Co. Inc. has been incorporated to manufacture typesetting machinery, with 2000 shares no par value, by Meehan & Waltzinger, Newark.

SHREWSBURY, N. J.—McColly Engineering Corp. has been incorporated with 10,000 shares no par value to manufacture engines and motors.

BROOKLYN, N. Y.—Besteel Metal Craft Corp. has been incorporated with 100 shares common stock to manufacture metal products, by J. Dannenberg, 25 West Forty-third street, New York.

BROOKLYN, N. Y.—Anderson Locke has been incorporated with $10,000 capital to manufacture copper and brass utensils, by M. J. Griffin, 307 Washington street.

BROOKLYN, N. Y.—Craftsmen Welders has been incorporated with 150 shares common stock to weld and braze metals, by Kotzen, Mann, Louis & Siegel, 51 Chambers street, New York.

BROOKLYN, N. Y.—Kent Metal Mfg. Co. has been incorporated with $20,000 capital to manufacture lighting fixtures by S. Slote, 15 Park Row, New York.

BROOKLYN, N. Y.—Tite-Lock Roofing Co. has been incorporated with $10,000 capital by F. M. Cohen, 49 Wall street, New York.

NEW YORK—Rainbow Utensil Co. has been incorporated with 200 shares common stock by E. L. Smart, 44 Court street.

NEW YORK—Columbia Fire Defense Corp. has been incorporated with $50,000 capital to manufacture fire extinguishers, by H. J. Jamieson, 55 Wall street.

NEW YORK—Haw Propeller Works has been incorporated with 100 shares common stock, to manufacture locomotion apparatus, by Stern & Reubens, 1 East Forty-fifth street.

NEW YORK—Hercules Stamp Mfg. Co. has been incorporated with $20,000 capital to manufacture stamping devices, by W. B. Sandler, 160 Broadway.

TROY, N. Y.—Rolfe Pump & Machinery Corp. has been incorporated with $10,000 capital by H. J. Speck, Troy, N. Y.

TULSA, OKLA.—Clark Welding Co. has been incorporated with $25,000 capital by G. C. Jamison, 1528 East Fifteenth street, J. O'Brien and Carl Clark, to operate welding shop.

OTTAWA, ONT.—Wonder Saw & Tool Co. Ltd. has been incorporated to manufacture and deal in saws, tools, and metal goods, with $50,000 stock and 50,000 shares of no par value, by Julien T. LeBlanc, Herbert W. Pearson, George B. Eastman and others.

RIVERSIDE, ONT.—Border Excavators Ltd. has been incorporated to carry on business as contractor, with $40,000 capital, by Charles P. McTague, Norman L. Spencer, and Violet Fitzsimons.

TORONTO, ONT.—County Electric Refrigeration Co. Ltd. has been incorporated to manufacture and deal in refrigerators and appliances, and to carry on the business of electrician and mechanical engineer, with $40,000 capital, by Robert Deyell, Arthur R. Deyell, William A. Elliott and others.

TORONTO, ONT.—Nicol-Easton Construction Co. Ltd. has been incorporated to carry on the business as contractor and engineer, with $10,000 capital, by Albert J. Lester, Macneil C. McLean, Laura H. Dougall and others.

TORONTO, ONT.—Wheeler Excavators Ltd. has been incorporated to carry on business as a general construction and engineering company, with 40,000 shares of no par value, by George M. Huycke, Norman E. Strickland, and Robert G. Ferguson.

TILLSONBURG, ONT. — Automobile Head Light Co. of Canada Ltd. has been incorporated to manufacture and deal in dirigible headlights for automobiles, with $100,000 capital, by John W. Pepper, Harry Graham, Minnie B. Graham and others.

MONTREAL, QUE.—Frigon, Heating & Electric Generating Apparatus Co. Ltd. has been incorporated with $200,000 capital stock by Achille Raymond, Gabrielle V. Meerschen, Gloria Hemond, and others.

New Trade Publications

STEEL FURNITURE—Angle Steel Stool Co., Plainwell, Mich., has issued a catalog covering its line of steel office equipment.

BELT CONVEYORS—Chicago Automatic Conveyor Co., Cicero, Ill., in a current leaflet sets for the claims of its belt conveyor idlers. Illustrations, drawings and data tables convey full information about them.

PLANERS—Cleveland Planer Co., Cleveland, has issued a bulletin on its open-side planer, for which is claimed increased power and speed. Illustrations of the planer and important parts are presented, to supplement the text.

BRIDGES—McClintic-Marshall Co., Pittsburgh, has issued a booklet containing pictures and descriptions of highway and railroad bridges in various parts of the country in which it has had a part in designing or erecting. Its equipment for such projects is mentioned incidentally.

ELECTRIC HOISTS—Hoist & Crane Engineering Co., New York, has issued a set of data sheets descriptive of devices and methods of electrifying overhead track for electric hoists and cranes. These are of value for engineers designing such industrial installations.

METERS—Connersville Blower Co., Connerville, Ind., has issued a revised edition of its bulletin on meters. It gives a brief history of the development of the double impeller type of blower or pump and of the rotary displacement meter. It describes the method of measurement, illustrates features of design and presents a chart giving a record of volume, pressure, temperature and rate of flow. A description is also given of the tandem meter and demand meters.

CRUSHERS—Pennsylvania Crusher Co., Philadelphia, has issued two bulletins covering two types of crushers of its manufacture. They are illustrated and the text gives reasons for their usefulness in reduction of materials to smaller sizes.

COPPER STEEL SHEETS—Inland Steel Co., Chicago, is distributing a booklet setting forth claims of its copper alloy steel sheets and data of a corrosion test carried on by the American Society for Testing Materials. It also gives a bird's-eye picture of the production of steel from ore to finished product.

GAS PRODUCERS—L. J. Wing Mfg. Co., New York, has published a booklet on improved gas producer operation. It explains how the turbine blower manufactured by this company improves the quality of the producer gas and increases output. Control of air and steam in the blast is a factor in the results attained.

ELECTRIC MOTORS—Wagner Electric Corp., St. Louis, has issued a bulletin describing its large single phase repulsion-induction motors. It contains illustrations and detailed description of parts. It also serves as a test book on single phase motors, covering many features of history and construction in its various stages of development.

SILENT GEARS—General Electric Co., Schenectady, N. Y., has issued a bulletin on its line of silent gears, made of two materials that reduce noise and give long wear. Illustrations show these gears in use on various types of machinery. The text explains various points in relation to gears of this type. Illustrations and tables of dimensions supplement the descriptions.

INDUSTRIAL MACHINERY—Ideal Industrial Machinery, Cincinnati, has issued a catalog of its products, including machinery for tumbling, separating, cleaning, washing, burnishing, painting and pickling metal parts. It is intended as a suggestion of what the company can do in filling the needs of manufacturers using these various processes.

CHAIN DRIVES—Link-Belt Co., Chicago, in a book recently published, announces expansion of its line of silent chain drives to include all sizes from one to 60 horsepower, from stock. All reductions from 1 to 1 up to 7 to 1 are available for immediate delivery. This idea was developed first four years ago with sizes up to 10 horsepower, taking from the field of engineering the application of such drives.

ELECTRIC HEAT—A bulletin by the General Electric Co., Schenectady, N. Y., is devoted to discussion of electric heat in its several factories. These include annealing, car-type, box-type, heat treating, baking brazing, sharardizing, japanning, core baking, lead plating, impregnating furnaces and devices for various operations in producing its varied line of devices. It is illustrated and descriptions are given of each type of heating unit.

LISTEN IN

on this business conference!

Leaders in many fields of industry and trade will meet with the editors and publishers of The Associated Business Papers, Inc., November 15 and 16 at the Roosevelt Hotel, New York, to discuss trends in business and cooperative trade development.

If you cannot drop in for these sessions, as we cordially invite you to, you can—by tuning in your radio—hear Mr. William Butterworth, President of the Chamber of Commerce of the U. S., speak on "Business Cooperation as a Public Asset." The National Broadcasting Company, recognizing the importance of the conference to business, will broadcast this key address over the stations named below.

The editors of this publication, which is a member of The Associated Business Papers, Inc., believe that you will want to be sure to hear at least Mr. Butterworth's contribution to this important conference.

Listen in November 16

9:30 P. M. Eastern Standard Time
8:30 P. M. Central Standard Time
7:30 P. M. Mountain Standard Time
6:30 P. M. Pacific Standard Time

WEAF New York	WLIT Philadelphia
WGN Chicago	KSD St. Louis
WGR Buffalo	WGY Schenectady
WCAE Pittsburgh	WOC Davenport
WRC Washington	WOW Omaha
WTAG Worcester	WJAR Providence

WCCO Minneapolis

(Subject to change. See station programs in local newspapers November 16)

THE ASSOCIATED BUSINESS PAPERS, INC.
52 Vanderbilt Avenue, New York

The A. B. P. is a non-profit organization whose members have pledged themselves to a working code of practice in which the interests of the men of American industry, trade and professions are placed first—a code demanding unbiased editorial pages, classified and verified paid subscribers, and honest advertising of dependable products.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLING

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 3-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh carload discounts. Less carloads 4 points less

STEEL (Lap Weld)

2 and 2¼-inch	27 off
2½ and 2¾-inch	37 off
3-inch	40 off
3¼ to 3¾-inch	42½ off
4 to 4½-inch	46 off
5 to 6-inch	40 off

(Note—Additional discounts of seven extra 5 per cents now being given on 21,000 pounds or more.)

CHARCOAL IRON

1½-inch	+18
1¾-inch	+ 8
2 and 2¼-inch	2 off
2½ to 3-inch	7 off
3¼ to 4½-inch	9 off

(Note—Additional discounts of two 10's and one 2½ now being given on 12,000 pounds or more.)

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48-off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	45 off

SEAMLESS HOT ROLLED

2 and 2½-inch	40 off
2½ and 2¾-inch	48 off
3-inch	52 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
21-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot ..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet.....No extra

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c